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B. BURGESS, CAPTAIN,
Secretary.

WHITEHALL YARD,

October, 1885.





The Journal OF THE Royal United Service Institution.

VOL. XXIX.

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Friday, May 15, 1885.

THE RIGHT HON. W. H. SMITH, M.P., in the Chair.

RECENT COLONIAL ACQUISITIONS BY FOREIGN POWERS, AND THEIR COMMERCIAL AND STRATEGICAL ASPECTS.

By Colonel Sir CHARLES H. NUGENT, K.C.B.

WHEN, at the request of the Council of this Institution, I undertook the preparation of this paper, I believe that the Council had present to them the bugbear which the Nation had raised, and in a very exaggerated form, of Germany as a rival Colonial Power, and the detrimental effect which such a rival Colonial Power might have upon our Colonies.

Let me at once confess that I do not share in apprehension of this nature. Our most important Colonies are so advanced in numbers, in free institutions, and in material well-being, as to be able, if not to stand alone, at least,—with very little assistance from the mother country,—to stand firm under whatever the future may have in store for them; they have then a great advantage over their Continental rivals, who are now but entering upon the race of colonization, and believing, as I do, that starting under equal conditions, they would be more than a match for them, I have no apprehension with regard to the result.

In approaching this subject my first impulse was to ascertain what Colonial Possessions the Great European nations had, and referring to a statement published seven years ago, I found that Germany had then no Colonies, and I see that she finds no place as a Colonizing Power in the comprehensive address of the President of the Statistical Society, delivered in November last.

The extent and population of the Colonial Possessions of the principal European nations are shown in the accompanying table:—

	Square miles.	Population.
Great Britain.....	8 millions.	204.5 millions. ¹
Holland	2 1/2 "	24 "
Spain	1 1/2 "	8.5 "
France	4 "	5.0 "
Portugal.....	2 1/2 "	3.23 "

Denmark and Sweden I have not gone into.

¹ Exclusive of the population of the feudatory States in India.

It has been estimated of the British Empire, that the area is one-sixth of the land of the Globe, and that the population is one-fifth of the population of the Globe.

But great as are our advantages in respect of population and of the extent of our possessions, these advantages are accentuated by conditions of climate and of race, of which I shall have occasion to speak hereafter.

In examining this subject of colonization, the first thing that impressed me was how little design or definite purpose upon the part of the mother countries had to do with the formation and moulding of these Colonies, and how largely their present conditions are due to the force of circumstances.

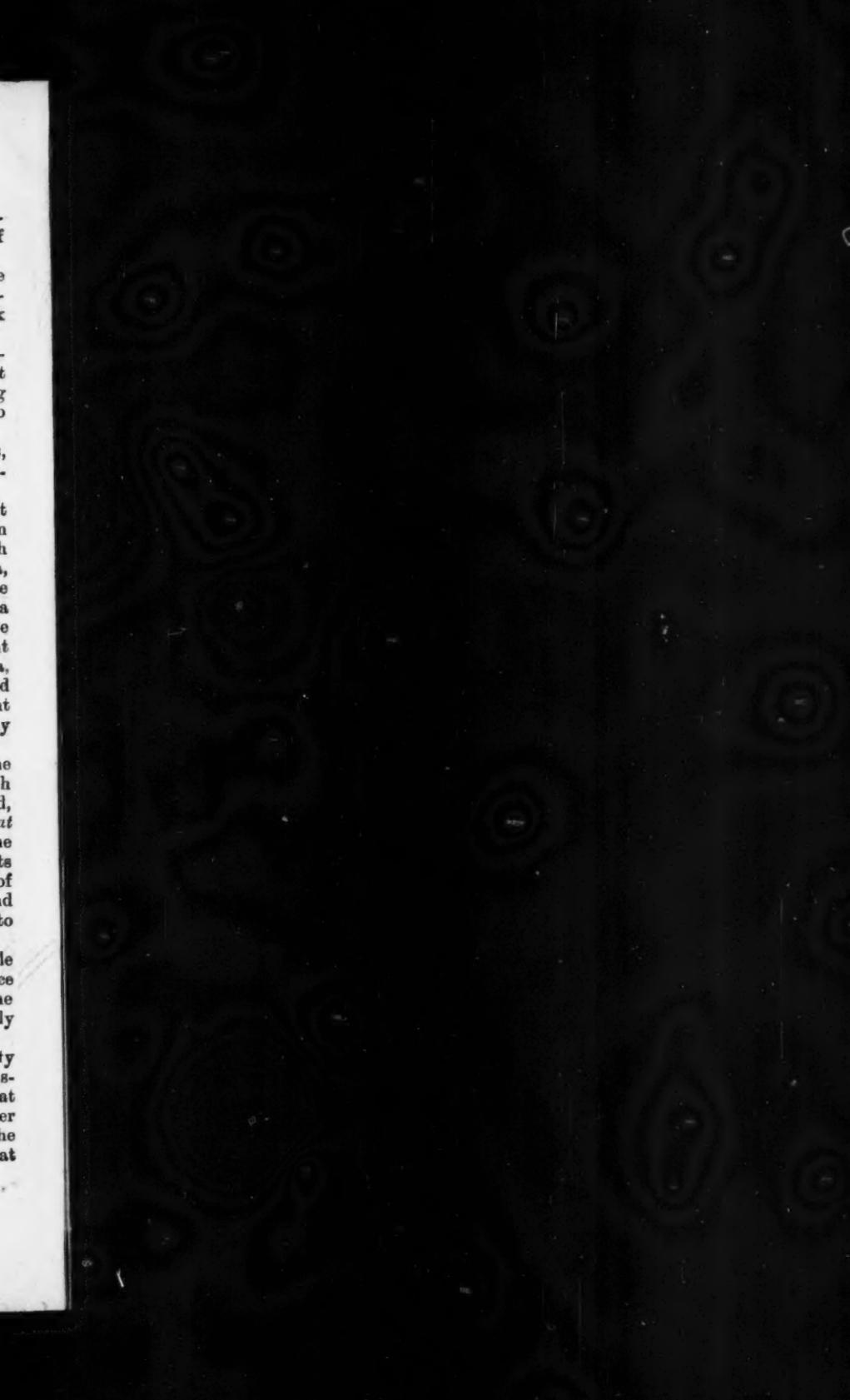
Of course different nations, or rather I should say, different races, have shown different aptitudes for colonization, but success in colonization has not always waited upon the most apt.

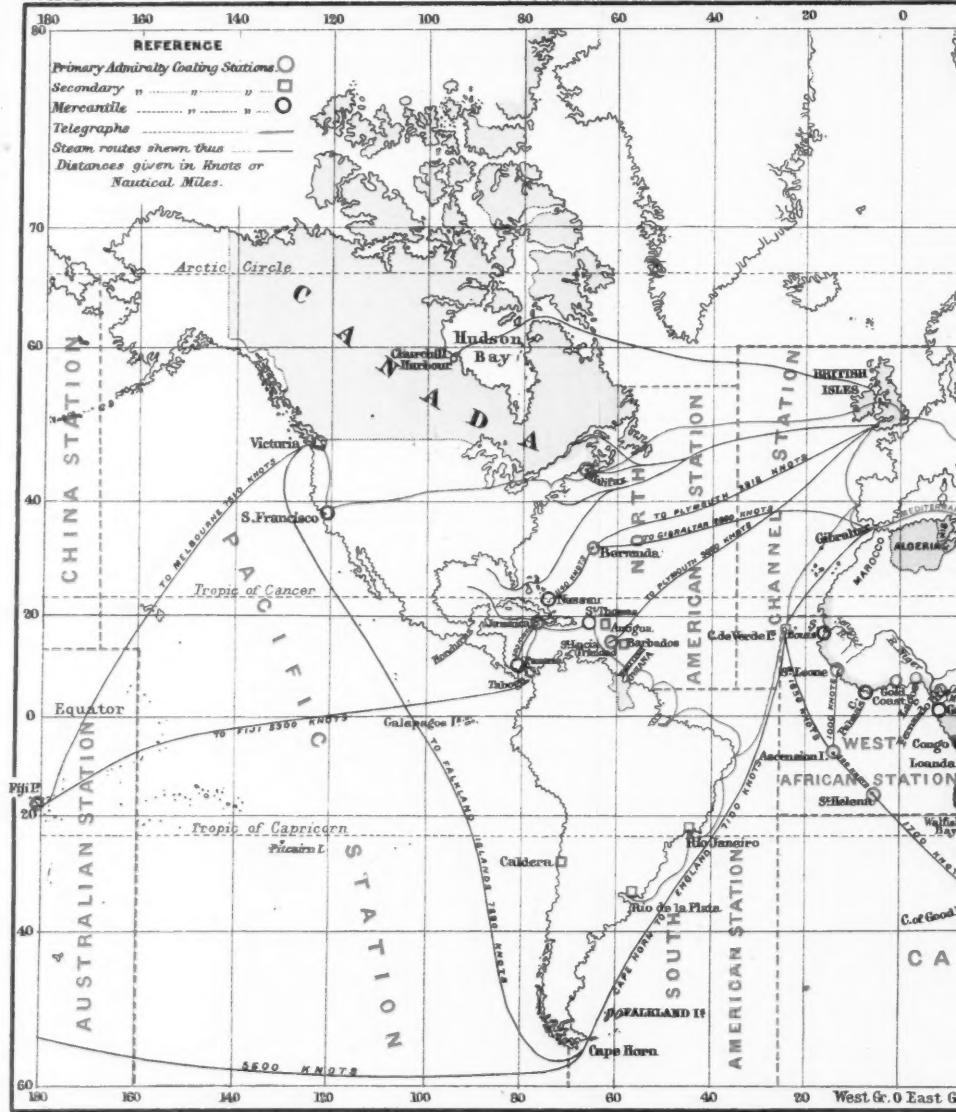
Of all European nations the French have shown themselves most gifted in conciliating the races with whom they found themselves in contact, and in assimilating themselves to these races, yet the French have lost the extensive Colonies they once had in North America, and have suffered themselves to be pushed out of India; the large military settlements they now hold in Algeria and in Cochin China are Dependencies, not Colonies, while their dreams of fertilizing the Great African Desert, by letting the Mediterranean into the ancient Lake Tritonis, now dry, and so introducing steamers into the Sahara, and by the appliances of military science, welding it with Algeria and Senegambia into one vast French Empire in North Africa, magnificent as they are, and much as, in the interests of civilization, we may hope that they may be realized, are at present phantasms merely.

Spanish and Portuguese Colonies are things of the past; the history of them is well known, and we may predict in respect of such modes of colonization as the Spaniards and the Portuguese employed, that the old adage will be untruthful, and that *history will not repeat itself*. These nations started upon the career of colonization with the most favourable opportunities, but without regard for the interests of their acquisitions, swayed only by the greed of gold and lust of power, carrying with them the baleful incubus of the Inquisition and the moral plague of slavery, they flourished in blood, and, unable to support their own foul growth, fell to pieces under the first blow.

The Dutch hold, and have held for many years, considerable Colonial possessions acquired through the important part they once took in the carrying trade of the world, but they still seem to make the fatal mistake of regarding their Colonial possessions as sources merely of revenue to the mother country.

In reality, the only race which has shown inexhaustible capacity for colonization is the English-speaking race; yet this race is successful only where it finds the conditions of climate and soil such that the Colonist can make there his home. But there is also another condition necessary to entire success in colonization, viz., that the inhabitants shall be few and of inferior race, so inferior indeed that they do not amalgamate with the whites and gradually die out.





	MILLION SQUARE MILES	
HOLLAND	1-2	24 MILLIONS INHABITANTS
SPAIN	2-5	8-5 MILLIONS
FRANCE	5	5 MILLIONS
PORTUGAL	0-5	2-3 MILLIONS

Pl.XII.





In all the Colonies where England's offspring most thrive these conditions have been present ; no doubt in this matter of colonization we have followed some unknown law, which has led us at the proper time to the spot most suitable for the extension of our race ; and here it is worthy of remark that the only territories in which rival nations have found similar suitable conditions, and in which they have planted true Colonies, viz., North America and the Cape of Good Hope, have passed into our hands by conquest.

The recent Colonial acquisitions of foreign Powers, which I propose to pass under review, are—

The acquisitions of France on the West Coast of Africa, in the Indian and China Seas, in the Pacific, and in the West Indies, and the Protectorate she has established in Tunis ; or, shortly, such acquisitions as she has made during the last twelve years. I exclude from consideration the purchase she made of Obok and a few (3) miles of coast, on the African (Somali) shore of the Red Sea, probably with the hope of placing there a counterpoise to Aden, because she seems to have abandoned it, and because it falls beyond the limit of time I have assigned.

And the acquisitions of Germany upon the West Coast of Africa, and those she is contemplating in the Pacific,¹ and on the East Coast of Africa, in the neighbourhood of Zanzibar.

At present the French possessions in North Africa seem to be a source of weakness rather than of strength ; they absorb a force of from 80,000 to 100,000 fighting men and a yearly expenditure of 2,000,000*L.*, still they may be regarded as excellent military training grounds, while they give to France a Mediterranean coast-line of nearly 1,000 miles, in which are several excellent harbours ;—in the aspirations of France to that naval supremacy which shall render the Mediterranean a French lake, additional coast-line is of great importance, her own seaboard in this sea is but 300 miles in extent, and is somewhat removed from the track of vessels, *vid* the Straits of Gibraltar and the Suez Canal to the East.

Wild as may seem the idea of one great empire in the North of Africa, the French have steadily kept it in view, and have made considerable progress in the last eight years ; during this period they have advanced upwards of 1,000 miles from the mouth of the Senegal, and have established a strong post on the Niger, with which there is steam communication, partly by water and partly by rail, and from thence they propose to reach Algeria by a rail across the Sahara² from Timbuctoo to Biskra, thus establishing communication between Cape Verd and Cape Bon.

Notwithstanding the progress made in Senegambia and in Tunis, this is not yet within the range of practical politics ; it would, however, be a manifest disadvantage to have a powerful enemy on both flanks in the Mediterranean, and North Africa requires constant

Trade of Timbuctoo four millions annually.

¹ New Ireland, New Britain, the Kean Group, San Antonio, San José, Santa Lucia, St. John's, Sir Charles Hardy, Bougainville, with its Empress Augusta Bay, and the Abagarris.

² See Journal, No. CXXVII.

watching;—watching to see that the Tunisian process of assimilation in 1881, be not followed in Tripoli on the one side, or in Morocco on the other.

Before leaving Africa I should call attention to sundry acts, which are considered locally as aggressions, of annexation upon the Gold Coast on the Tando River, and upon the Slave Coast at Porto Novo; though in themselves small acts of aggression, they are of some local concern, and indicate a spirit of activity sufficiently hostile to take advantage of supineness upon our part.

The first place which claims our attention in the Indian Sea is Madagascar. Madagascar is an island of greater area than Great Britain and Ireland, and nearly equal to France; it is 950 miles by an average width of 300 miles; it is 300 miles from Africa, from which it is separated by the Mozambique Channel; 550 miles from Mascarene, and 450 miles from the Mauritius. Its population is 4½ millions, and is composed of three distinct races, probably of Asiatic or Polynesian origin; viz., the Hovas, the dominant race in the centre, the Sakalavas on the West Coast, and various small tribes on the East Coast, of which the Betsimisaraka is the prominent; it lies for the most part just within the Tropic, some little distance off the Cape Mauritio-Indian track, and is 1,800 miles from Ceylon, and 3,000 miles from south-east Asia. A French naval force there would be in a position to interfere with our coaling stations at Zanzibar and at the Mauritius, and would be a standing menace to the Cape, though with the more advanced class of steamers come, or coming, into use, there may be less necessity to resort to these two stations. In the event of the Suez Canal being closed to us, when the trade with India and China would be compelled to pass round the Cape, Madagascar might become an excellent position in the hands of an enemy for aggressive purposes, but at present it is so isolated, the nearest French station between it and France being 4,000 miles distant, with three English stations intervening, that it is rather a source of weakness.

Commercially Madagascar is not at present of great importance; the sea-coasts are bordered by a flat maritime plain, which is fertile but unhealthy; in the interior, which bears evidence of forcible volcanic agency long extinct, is a high tableland of gneiss and granitic formation, with very deep pockets of unfertile clay, which seems to be adapted for pasturage and timber only. Sugar, rice, and coffee can be grown in the valleys, and cotton on the coast; the only minerals yet found are silver, copper, iron, salt, and coal, the latter has been for some time an article of export in the north-west, near the French island of Nosibé.

Up to the 12th October, 1884, the agreement between England and France was that the two Governments should maintain an identical policy, and should act in concert in Madagascar; Her Majesty's Government, and the French also, at that time recognizing Queen Ranavalona as absolute Sovereign of the islands, except Mayotta and Nosibé, then occupied by the French, but the French now claim the north of the island as far as 16° south latitude, under treaty with

a Sakalava chief; notwithstanding that they had acknowledged the Hovas as dominant over the whole island.

It is worthy of remark that when it seemed as if matters here might lead to a rupture with England, Prince Bismarck placed German interests and German subjects under French protection.

The island is capable of development, and the inhabitants are gentle and readily civilized.

Passing to Cochin China, we find that three provinces were occupied by the French in 1867, and the whole six provinces were abandoned to them in March 1874, and we know what has been going on in the last two years, during which the French dominion has been extended along the eastern shore of the peninsula upwards, to embrace the whole of the Annamite kingdom, and Tonquin, or the greater part thereof.

Lower Cochin China is very unhealthy. Europeans cannot become acclimatized, and most of the children of white parents die in a short time after birth; the service of French troops has been reduced to two years in this country, and not too soon, as the mortality upon a service of three years, the previous term, was 9 to 10 per cent.

Up to a recent period the number of Europeans, exclusive of Government officials and the garrisons, did not exceed 1,500.

Annam is an agricultural land and less unhealthy; Tonquin is healthy and rich in minerals, gold, silver, brass, and iron; these metals are found in Cochin China also, where there are extensive coal mines,—in some parts upon the coast itself.

The "Annuaire Militaire" of this year seems to put the normal strength on the station at about 10 battalions, of whom half are Colonial forces, and 27 vessels, all small, of which 16 are gunboats and 2 are transports, but at present it is understood that there are in these countries 35,000 French troops, 14,000 native troops, and 70 vessels of sorts, carrying 7,000 sailors and 35 guns. Thus made up—

	French.	Natives.	Guns.
Tonquin	24,300	9,000	78
Cambodia and Cochin China	4,000	2,900	
Annam.....	1,000	3,000	
<hr/>			
Total	29,300	14,000	78
<hr/>			
Formosa	6,000		
<hr/>			
Naval Forces....	5 ironclads. 17 cruisers. 5 despatch vessels. 11 gunboats. 31 " river.		
<hr/>			
Total	69		

The acquisition of these provinces has not altered the military position in these seas, the outlet to the southward is still held by

Singapore, while the extension of French territory has not carried with it greater offensive power against Hong Kong, or by the open waters to the eastward of the Louisiade Archipelago, against Australia or New Zealand; still a large force of fighting men is habitually in these countries, which might in able hands be suddenly directed elsewhere. This is a standing danger which should not be overlooked. In other respects Cochinchina is a source of weakness to France; the climate is unhealthy, and of the trade, which is not very great, only $\frac{1}{2}$ per cent. is French (a).

(a) Imports
2,750,000.
Exports
2,500,000.

New Caledonia does not fall within the limit of twelve years which we have under consideration, but recent French legislative proceedings with respect to this Island have excited, and justly excited, so much indignation in the Australian portion of our Empire, that we cannot pass it by without some attention.

In 1884 a Bill for the transportation of relapsed criminals was under the consideration of the French Senate; shortly stated, the Bill contemplated the banishment (*relégation*) of relapsed criminals, and defined this banishment as perpetual internment upon the territory of French Colonies or possessions, indicated as New Caledonia and its dependencies, the Marquesas Islands, the Island of Phu Huoc, and French Guiana. Authority was retained by the administrative (local?) to allow in exceptional cases the banished to leave for a space six of months their place of internment; this however did not carry with it right of temporary return to France, unless by a Ministerial Decree.

Naturally the whole of the Australian Colonies were at once up in arms. New Caledonia is about 1,000 miles from Australia, but there are many parts of the year during which the prevailing winds, smooth sea, and fine weather enable a voyage to be made in an open boat with comparative ease and safety; and so the convicts who succeed in evading their punishment generally make for Australia; moreover, time-expired men forbidden to return to France, are actually brought by French steamers from Nouméa and landed in Australia.

In the ten years preceding the introduction of this Bill, twenty-five escaped convicts have been discovered annually in the Australian territories, and it is well ascertained that twice as many more have not been discovered; under the provisions of this Bill, the number of criminals in New Caledonia, now 10,500 (b), will be augmented by 800 yearly for three years, under conditional liberty, of whom, as the resources of the island can neither support, control, nor watch them, it is evident that numbers will find their way to Australia, and will be a source of expense as well as of anxiety; many of them now find their way to Australian jails, and police are employed solely in looking after them, indeed, it can scarcely be doubted but that the authorities in New Caledonia are not as zealous as they should be in preventing escapes, and I find the French representative in Queensland, on one occasion at least, when referred to by the Queensland authorities, absolutely declining to apply for the extradition of certain French escapees.

C. 3839, p. 42,
Stuart.

(b) Costing annually 6 million francs, to which must be added, cost of deportation, 1,000 francs per head and cost of garrison.
C. 4217, p. 44.
M. Simonin's Mem.
The cost of a transporté is 750 francs per annum, and the cost of deporting 12,000 récidivists, of whom 9,600 will go to Guiana in three years will cost 25 million francs.

The end of it all is, so far as it has ended, that our Ambassador at Paris has not been able to obtain any really satisfactory assurance from the French Premier, who probably was afraid of appearing in this matter to yield to British representations. The Colony of Queensland has since passed a Bill to prevent the influx of criminals into Queensland, upon which, in the form in which it reached the Colonial Office, that Office was unable to take Her Majesty's pleasure. C. 3814, p. 20.

C. 3839, p. 56.

In pressing this matter, which the British Ambassador did with much persistence, upon the French Premier, he was able to quote some remarkable utterances of the Governor of New Caledonia : " We have not," says the Governor, " found the solution of the terrible dilemma, to which the arrival of the relapsed criminals will give greater force. A certain number of the liberated work in the mines, others among the planters, and in the different industrial establishments of Nouméa, others are manual labourers, others are at work upon their own account, but a large proportion is occupied in a very irregular manner, and lives at the expense of the honest workers . . . It is impossible to employ more for the moment, and the result is that there is not place in the Colony for the employment of the relapsed. Who are the planters who would receive among them these men, thoroughly bad, and expelled justly from their country on the ground of incorrigibility ? Upon the main island it is impossible to make a concession of land to a single relapsed criminal." As to the Loyalty Islands, " they present upon their shores a belt, more or less wide, of cocoa groves without culture, called ' the forest.' The formation is coral fissured, and filled with humus (soil) in the fissures, in which the natives prepare their cultures ; beyond the forest is an unfissured coral plateau with perpendicular cliffs, and covered with but $1\frac{1}{2}$ inches of soil ; it forms a vast plain without trees and without vegetation, except a small scrub, which we are endeavouring to utilize for sheep feeding. In the three islands there are but 45,000 hectares of cultivable land out of a total of 196,000 hectares ; the population, which is increasing, is 16,000, but knows nothing of cropping or manuring, so a considerable portion of the land is always left fallow ; moreover, though it often rains in the Loyalty Islands, there is no water, and to get what can be got, it is necessary to sink wells not less than 165 feet deep. To instal European concessionaires on these islands is to condemn them to misery, and to oblige the State to assist them indefinitely."

Lifou,	25 000
Marc,	51 000
Ouvéa,	5 000
45,000	

If it be in contemplation to expel the indigenous inhabitants and to replace them by relapsed criminals, it cannot be accomplished without being bruted abroad, and there is not a native who would not find an impassioned defender among the English and the Australians. " I seek to rout out the English influence in these islands, by schools, and by every means in my power."

" The lands in New Caledonia and the Loyalty Islands do not permit the application, as designed by the legislator, of the law of banishment." So far the Governor; it is evident that the measure was, as regards New Caledonia and the Loyalty Islands, inexpedient, and fraught with the worst consequences to the criminals themselves. C. 4217, p. 20.

Commercially these islands are to us of no great concern, but we might have been spared all this trouble if attention had been paid to Sir G. Grey's representations in 1848, when New Caledonia was thought to appertain to New Zealand, and when the French flag was first seen on the Island of Pines, but which, with other adjacent islands, was not formally occupied by the French until 1853.

The Samoan or Navigators Islands form an independent group, recognized as such by European diplomacy, and it might probably be questionable whether any annexation here would not be a violation of International Law. This country, as well as Germany, has entered into Treaties with the King and Government of Samoa. So, also, in the Tongas, or Friendly Islands, the action of England and Germany has been similar in making Treaties, and the Government of them is recognized as independent.

New Hebrides.

The New Hebrides were originally, under the Charter of 1840, part of the Colony of New Zealand. A vague understanding with France seems to have led the Crown to relinquish them, and to recognize their independence. In 1877 they were omitted in the Order of Council, nevertheless the High Commissioner of the Western Pacific rested under the impression that his jurisdiction extended over them, in so much so that he appointed a Deputy Commissioner for them. In 1878, it having been reported that the French projected annexing the group, the French Ambassador declared his Government had no intention of interfering with the independence of the islands, and obtained the assurance that Her Majesty's Government had no intention of "changing the condition of independence" which they then enjoyed.

C. 3863, p. 63.

The Intercolonial Convention also formally pressed that the understanding with France respecting the New Hebrides¹ should give place to a definite arrangement, which should secure the islands from Foreign Dominion.

The Presbyterian Mission have spent 140,000*l.* here, where they have had a mission for 25 years, and are now spending 7,000*l.* per annum.

C. 3814 p. 11.

But we should not suffer ourselves to be lulled to sleep by any such arrangements. We have already seen how France has disregarded them in Madagascar; by similar reciprocal engagement Great Britain and France bound themselves never to take possession of the Raiatea group of islets to leeward of Tahiti, but the French flag has been hoisted for three years over these islets without remonstrance. Moreover, there is always this danger, that, while we are resting satisfied, each with having put it out of the power of the other to move, a third nation may step in and take possession.

France has shown great foresight in establishing herself at Tahiti, at the Marquesas, and the Navigators Islands, which, with the splendid harbour on Tutuila Island, will rise into great importance when the

¹ In the New Hebrides a French Company, "Calédonienne des Nouvelles Hébrides," capital 500,000 francs, has already acquired 245,000 hectares of land, are doing a large business in copra, maize, and coffee, to the extent of 200,000 francs, and are working the sulphur mines of Java.

Panama Canal is finished ; the trade between Australia and the Pacific Islands (the greater part of the island traffic passes through Australia only on the way to England) is now more than 6·5 millions, and this exclusive of the foreign trade. No doubt, however, the trade of the Pacific will be greatly changed by the Panama Canal.

Commercially, I do not think that the islands of the Central Pacific considered singly,—in the aggregate their trade would no doubt be considerable,—are likely to be of material value to any European nation, though they would probably be more valuable in our hands than in those of Germany or France.

Situated within the Tropics, they are not suited for the labour of white men, and their native population is small, and everywhere decreasing. Agricultural products are the staple; there are no mineral resources, and pastoral pursuits do not as a rule succeed under tropical suns.

At present local difficulties in respect of want of labour are met by inducing the natives to move from place to place; this movement is attended by a high death-rate, and so rapidly is the population decreasing that if this movement continues the natives must soon come to an end.

Imported labour from the East Indies or China would, if practicable, be expensive, and probably unremunerative, as the market for Australian products is at present very limited.

Against this may be quoted the case of Hawaii, where the export trade and the revenue have greatly increased, due to the entry of its sugar into the markets of the United States free of duty, equivalent to a bonus of 10*l.* or 12*l.* per ton, yet the native population, which in 1820 was a quarter of a million, is now probably not more than 30,000. In this island black labour has long been running short, and the supply of Portuguese and Scandinavians by which it has been lately supplemented is no longer maintained, so that the cultivators are again turning to other islands of the Pacific.

C. 3863, p. 204.

Population :
Fiji, 15 per
square mile.
Jamaica, 125
per square mile.

Now let us turn our attention to Germany; and in order to arrive at some idea of the possible effect of her colonization upon our own Colonies, it is necessary to consider carefully the positions and climatic conditions of German Colonies: as we have already seen, English Colonies have only thriven to a state of independence where the climate has been temperate, and in such, the population is now for practical purposes wholly white; in such of our Colonies as are in the torrid zone, the percentage of white in the population does not at most exceed five, and is as low as one. Such, indeed, are not true Colonies, they may be trading stations, or they may be military stations, but they are not, in the true sense, Colonies.

The German acquisitions on the Gold Coast are in isolated spots¹ between the Niger and the Tando Rivers, beyond, they lie mainly on the parallel of 4°30' N. latitude; the climate, with the exception of the

¹ Such as Bagedad on the Slave Coast, and Nakin near Benin, though small acquisitions, they have caused considerable local feeling, the more so as it is thought upon the spot that they might have been avoided by timely firmness on our part; German presence in these spots is irksome to us.

higher ground on the slopes of the Cameroon Mountains, which attain an altitude of 13,760 feet near Ambas Bay,¹ is not very healthy,² the number of inhabitants is small (6,000), and the articles of export few; the main items are palm-kernels (seven-ninths of the whole), palm-oil, india-rubber, logwood, ebony, and ivory, in all, half a million ; the imports are mainly spirits (a) (six-tenths of the whole), salt and rice. Consul Hewett thinks the trade might be worth to Great Britain 1,000,000*l.* (b) per annum.

Rum ...	224,747	cwt.
Geneva...	269,515	
Other spirits...	19,855	
(a)	533,918	
Value (b)	£821,840	

The loss of such an amount of trade is not material to Great Britain, and perhaps not of as much advantage to Germany as it at first appears, especially as the German people will, it is understood, be taxed to subsidize the line of steamers plying between Hamburg and the Coast;—there is, however, a considerable inland trade which may be reached and developed by the waters of the Calabar River by which access is gained to the oil regions of the interior.

It is evident, however, that the Germans set considerable store by the acquisition of these Colonies, for they had recourse to unusual and very doubtful proceedings to acquire them. No one can rise from the perusal of the Blue Book, in which the correspondence respecting the Cameroons is published, without finding his respect for German straightforwardness and courtesy painfully lowered. The correspondence opens with a request from the Imperial Chancellor to the British Government, to afford the Imperial Consul-General and Agent full facilities to enable him to complete information upon the state of German commerce upon the Coast, and to put himself in communication with the authorities in the English *possessions* on the Coast, and to conduct negotiations connected with certain questions; this was—well: the Imperial Chancellor afterwards stated that they were careful to conceal the real object of the Consul-General's journey, lest the

Africa—West Coast.

¹ Since the above was in press, matters have been settled. Great Britain (Lord Granville's despatch 29th April, 1885) engages to make no acquisitions of territory, accept protectorates, or interfere with the extension of German influence to the east of the following lines, viz., right bank of Rio del Rey entering the sea between 8° 42' and 8° 46' E. long.; in the interior a line following the right bank of the del Rey from its source to its mouth striking from the source direct to the left bank of Old Calabar or Cross River, and terminating after crossing that river at about 9° 8' E. long., at a point marked Rapids on English Admiralty Chart; Germany engaging as above with respect to that part of the Coast of Gulf of Guinea lying between right river bank of the mouth of del Rey and the British Colony of Lagos, and the interior to the west of the line described above.

Excepting the settlement of Victoria, Ambas Bay, which continues British, though in a subsequent despatch of same date Lord Granville says that if the Germans can come to terms with the missionaries respecting Victoria, Her Majesty's Government would be ready to agree to its inclusion in the territories under German protection;—Great Britain by this loses the Cameroon Mountains.

Germany engages to withdraw her protest against the hoisting of the British flag at St. Lucia Bay, and to refrain from making acquisitions of territory, or establishing protectorates on the Coast between the Colony of Natal and Delagoa Bay.

² The physical characteristics of the Cameroons are more favourable to Europeans than in any Colony on the Gold Coast.—Mr. Collings to Mr. Gladstone, 27 | 9 | 83.

The imports to England are 120,000*l.*, the exports from 80,000*l.*, average shipping per month on the Coast, 2,400 tons. The Bay of Ambas is the finest harbour on the coast from Sierra Leone to Table Bay.—Mr. Collings to Lord Derby.

Germans should be forestalled by us :—this was the first step. The Consul-General landed, and assembled the kings of the towns, and villages, and their head men, at midnight,—hoisted the German flag at daylight and saluted it, after having obtained the signatures of the kings to an agreement, which he carried away, leaving no copy :—this was the second step. Also, the German flag was hoisted, though it was lowered afterwards, in towns on the right bank of the river, the kings of which had been no parties to the agreement. If the testimony of the kings is to be credited, their signatures were obtained to agreements which were not what they purported to be, and which the Germans carried away, leaving no copies; and their signatures were obtained by false pretences; for instance, they said the Germans stated that they were the same as the English (let us hope this is a mistake); they stated to the king of William Town that the agreement was for the sale of half his town; to the king of Dikoto that the agreement was for establishing a factory there: and so on.

The Germans had not been long in possession when troubles broke out, resulting in loss of life on both sides, and the destruction of several native towns. Then the German Naval authorities commenced to find fault with the British on the spot, the German Admiral exhibited to every one the disagreeable side of German militarism—and it can be very disagreeable—and at last the Chancellor wrote to the Foreign Office a letter, in which he says that there is suspicion that the native outbreaks are fomented by the British on the spot, and upon this suspicion he demands that the British Vice-Consul shall be removed, and that the Officer commanding one of Her Majesty's ships shall be reprimanded. It should also be borne in mind that with this he was endeavouring in his place in his own Parliament to discredit our Foreign Minister with his own countrymen, where he stated that he could not avoid the impression that the acquisitions made by England on the Coast between Ambas Bay and the Colony of Lagos were intended, since our (German) annexation of the Cameroons (in spite of the assurances to the contrary), to prevent the possibility of an extension of our possession. Lord Granville having already told him that Her Majesty had placed the territories from Ambas Bay to the limits of the Lagos Colony under her protection, before she had any idea of the interest taken by Germany in the West Coast of Africa, and that we had neither desire nor intention to hamper or to interfere with German acquisitions.

Of one thing the Imperial Chancellor may rest assured, that whatever our political views may be, we shall all as one man join in upholding our Foreign Minister in maintaining British interests, especially in cases where he is engaged in repelling foreign militarism.

Militarily, the German acquisitions at this part of the coast are not in themselves prejudicial to us, nor if from them they secure access to the regions of Central Africa should we repine; in these regions the whole of colonizing Europe may find employment for a long time to come, in them is space for all European adventure; they lie a considerable distance off the trade route by St. Helena to the Cape: in the event of war, it of course adds to our embarrassment to have to

keep a look out here upon German as well as upon French naval stations, but it is at present no real source of danger. It, however, emphasizes the necessity of placing the island of St. Helena and the station of Sierra Leone in efficient fighting condition.

Much the same may be said of the German acquisition between Cape Frio and the Orange River. It is worthy of remark that this territory was annexed by Cape Colony in 1876, but its action was disallowed by the Colonial Office, which, however, retained Walvisch Bay. But it carries with it this grave danger: it is a position whence Germany can play off the Dutch element at the Cape against us,—whence it can easily give direction, cohesion, and unity of purpose to Boer movements, which now proceed on purely individualistic lines, and deal with the natives according to the feeling of the place and the idea of the moment. This is the more reason for dealing with the Boers with a strong and firm hand, as the Germans are already prospecting the territories of Namaqualand, Damaraland, and Ovampo, where German missionaries have been for some time; in the event of Germany acquiring Holland, and her present aim seems to be to cause it to fall into her lap, by the manipulation of reversionary rights, this question of nationality, no matter how unreal it may be, can easily be so strained as to cause us considerable embarrassment.¹

Our first and most potent resource appears to be the extension of our influence inwards by the civilizing agencies of the railway and the telegraph, and by the establishment as we go of such an ordered state of affairs as shall induce the steady inflow of British energy and British capital. Our second is a well-defined and just policy to which we shall firmly adhere, no matter what are the consequences.

Already the railway has been carried from the sea to the Orange River, and the sooner it reaches Kimberley the better. It is but a few years since the parallel of 28° S. latitude was our most northern limit, yet the "London Gazette" of January 30th, 1885, confers on the British High Commissioner civil and criminal jurisdiction in the parts of South Africa bounded by 22° of S. latitude, 20° of E. longitude, the western boundary of Natal, and the north boundary of Cape Colony.

There is no doubt but that the action of the German Colonists is at present distinctly hostile to us; we, on our part, imposed no restrictions on German trade, and it required no protection, whereas, no sooner is the German flag hoisted than all sorts of exactions and petty restrictions are imposed, and much ill-feeling is excited; indeed, the British Consul-General at Hamburg, between which place and the Gold Coast is the most of the German trade, reports that the avowed object of the German Syndicate in Hamburg is the extension of German trade and the extinction of all British trade in this country, and to this end the line of steamers, plying

¹ The alleged object for taking Angra Pequeña was to work the copper mines in the interior. This working is doubtful, the mines are some distance in the interior, and the region is barren and dry, so that water is brought there from considerable distances—from Cape Town (?).

between Hamburgh and the Gold Coast, is to receive a considerable subsidy from the German Government,¹ a heavy tax to pay on the trade, which in 1884 was 455,000*l.* inland,—and 871,566 cwt., of which spirits, rum, and general provisions amounted to 520,000 cwt., outland.

I have not had access to any papers throwing light upon Germany's proceedings upon the West Coast of Africa, but I understand that so far they have not been attended with much success.²

Passing to New Guinea, which is the largest island in the world,—though not much larger than Borneo, their areas being 306,000 and 294,000 square miles respectively,—I find great difference of opinion, or rather of assertion, with respect to its climate, and with respect to its resources: those who advocate its annexation, say that the climate is pleasant, the soil fertile, the streams abundant, and the natives gentle,—indeed, one explorer goes so far as to say that they are barbarians but not savages,—and that the geological formation, especially between Redscar and Astrolabe Bays, is identical with the formation in

¹ The Bill introduced by Prince Bismarck to provide 4,000,000 marks—400,000*l.*—for subsidizing certain lines of steamships, was thrown out by the Reichstag, but will, it is understood, be carried eventually.

² Zanzibar is of some concern to this country, not only because it is the most important centre of East Africa, but because from it access is gained to the lake regions of Equatorial Africa, and most of the recent expeditions have started from it: the trade between England and Zanzibar is, perhaps, 1,000,000*l.* annually. In Zanzibar are 6,000 British subjects, and in the adjacent lands are more than twice as many more, while as far as I know the German subjects do not exceed 300: there can then be no question as to the interests of the two nations.

It seems, however, that Germany has established relations with the Sultan (Simba) of Vitu since 1867, and that a German company has acquired territory here, but this Sultan's claim to independence is very doubtful. The Germans say that he has always been an independent ruler between the Rivers Osi and Dana, and from the Coast to the mountains, including Kenia and Kilimandjaro; whereas Mr. Johnson says this Sultan is a petty slave-dealer and doubtful owner of a strip of territory 25 miles on Coast line by 10 miles deep, and that he has solely existed hitherto because our Vice-Consul at Lambuay prevented Zanzibar soldiers from exterminating him.

The Sultan of Zanzibar, Seyyid Burghash, claims the whole East Coast as under his sway, from Cape Delgado to the mouth of the Juba river. The "Standard" correspondent at Berlin quotes all the African travellers he has met during the last three years as assuring him that the wild tribes in the interior were independent, and that they all, including Captain Speke and Dr. Fischer, regarded the whole Coast from Cape Delgado to 1° S. latitude, including Lambuay, as under the undoubted sovereignty of Seyyid Burghash, and he adds that the official German map in the White Book on the Congo colours this Coast as belonging to Zanzibar.

Here are the materials for a quarrel between Seyyid Burghash and Simba: the former exercises his sovereign rights, enforcing them by armed men (he is said by the Germans to have sent 300 men under General Mathews, an English Officer, to M'Kongwa, which force violated the headquarters of the German Consul), and not acknowledging the German claims, as he could scarcely if his contention be correct, that Simba had no authority to make any concession to the German trading company.

Then the Germans send a squadron: 5 vessels, 40 guns, and 1,600 men to insist upon German claims by overwhelming force. Moreover, following what they have done elsewhere under not far dissimilar circumstances, the Germans find that the British Consul-General, Sir J. Kirk, is at the bottom of all the opposition to their proceedings, and if they do not openly demand, are said to expect, his recall.

Australia in which gold has been found; those, on the other hand, who deprecate precipitate action, say that the heat is excessive, that all the attempts of the Dutch to settle in the interior have been abandoned, owing to its unhealthiness, that expeditions formed to prospect for gold, after careful search over what seemed to be the most likely region, have not found gold in quantities sufficient to render gold working remunerative, that in the search the searchers suffered severely from sickness, and that the natives are not to be trusted, and are only friendly when they dare not be otherwise; one thing is certain, that some of the natives are not only treacherous, but cannibal also.

The Dutch, who have long held the western portion,—their protectorate is over 67,000 square miles with a native population of 200,000,—seem to have done little to develop the interior of this portion, and little is known of its mineral resources,—as they have done little in Borneo, a far more fertile island, abounding in mineral resources, including coal of excellent quality,—they have however established a considerable trade with the Moluccas;—Wallace says this part is rugged and mountainous and the climate very wet.

Moresby speaks highly of the vegetation and appearance of the south-east coast, but his acquaintance with it was mainly from the sea; and at the port which bears his name the climate is said to be bad, sores refuse to heal, and fever and ague prevail, and it furnishes no article the export of which offers sufficient inducement to tempt a colonizing company. Gold is unknown among the natives. It is thought the southern portion of this part of the island is the best; the rivers run south, and the vegetation is along their courses.

There are at least three excellent harbours on this coast, Port Moresby, Hall Sound, and Kerepuria. Port Moresby is easily defended. The entrance to the outer harbour, in which there is 36 feet of water, is 1,800 yards wide; its depth is 5,000 yards. The Inner or Fairfax Harbour, in which there is 24 feet of water, is narrow, and the headlands of both are bold and commanding, but there is a range of hills at the back of this harbour which renders access to the interior of the island difficult.

Hall Sound is very defensible, a convenient island closing the entrance; the water is deep, but the locality is unhealthy.

Kerepuria is described by the missionaries as a splendid harbour, from which access to the interior is easy, but the native population in the neighbourhood is dense, and no settlement can be made without dispossessing them.

Between Torres Straits and Redscar Bay there is a barrier reef; beyond the bay the water is clear, the fall of the rivers into the sea preventing the formation of the coral.

Upon the north-east sides the water is of very great depth, up to the shore line.

For offensive action against Australia the Germans in New Guinea must be for some time to come powerless; the distance across the

island from Huon Bay to the south coast is about 100 miles, and an expedition by land would have to cross at least one mountain range and move through an uncleared country, in which there are no roads, so that an attack by land upon British settlements on the south coast is not at present within the range of military operations.

By the sea an expedition must pass either inside the Solomon Islands or outside the Louisiade Archipelago, and would have to steam 1,800 miles before it reached Brisbane, a place well able to take care of itself, and would have either to watch or to leave upon its flank our stations at Thursday Island or Port Moresby, if that be the place we occupy and fortify,—and if we occupy it we must fortify it.

Looking, then, to the distance of New Guinea from Europe, the Germans must be in force there before they can enter upon such an expedition, and it seems to me, that in the event of a war with this country, a German settlement in New Guinea would find itself in a very awkward position.

If we find, as we do find, five stations necessary in each of our two connecting lines with Australia, how will Germany fare with but one in a longer line, the inlet and outlet of which pass close to British waters?

But we must not overlook the fact that the German position here is close upon, for some 600 miles, the centre portion of the outer trade route between Australia and Hong Kong, and to this degree their presence is irksome, if not worse, and will require watching.

The missionaries, who best know the inhabitants and the island, speak favourably of the climate and of the inhabitants.

Probably the truth will lie between these conflicting accounts, and it may be that the island will prove to be not fitted for a permanent habitation for Europeans,—though better than many tropical countries, for the establishment of trading stations; but Europeans may turn to excellent account here Chinese labour;—under similar conditions the Chinese have thriven in Borneo without there developing the unpleasant characteristics they have developed elsewhere, they are one of the most valuable elements in Bornean civilization, and are recognized as an industrious, intelligent, and well-educated race.

The balance of evidence seems to point to the existence of gold in New Guinea.

If it is difficult to ascertain the capabilities of New Guinea, it is still more so to ascertain the capabilities of New Britain¹ and New Ireland. Little is known of the interior of these islands. They are said to be not more than ordinarily fertile; the interiors of them are mountainous, with at least two active volcanoes, and the inhabitants are cannibals. They are known to have one good harbour. At present their commercial value must be little; their climate does not

¹ Mr. Wilfrid Powell says the climate is such as to make it impossible for white New Britain men to live in them more than two or three years without suffering much injury from malarious fevers. Cannibalism prevails to a great extent.

In the Duke of York's group the natives are afflicted with a terrible disease in which the skin peels off sometimes the whole body.

appear suitable for Europeans, and it seems doubtful whether even German enterprise can make much of them. Strategically they are of comparatively little importance.

Upon commercial grounds then it is a matter of regret that we permitted any portion of the eastern moiety of New Guinea¹ to pass to other hands. This applies also to the other islands recently annexed by Germany.

This regret is increased by the feeling that the loss of this island is mainly due to the sluggishness of action and the want of perception of passing events in the Colonial Office. It is now nearly twenty years since the instinct of the Australian peoples prompted their attention to New Guinea and to the islands of the Pacific; in spite of continual discouragement that instinct has never ceased to exercise its powers. At one time it is New South Wales: witness the expedition projected in 1867, and the expeditions undertaken in 1872, and under Mr. R. Macleay in 1875; at another time it is Queensland; at another it is Victoria. But whichever the Colony which for the time leads in this matter, it is in response to a natural and true instinct which impels them to regard the adjacent islands of the Pacific, and New Guinea especially, very jealously.

Some in this country may perhaps think, and rightly, that our distance affords us a clearer perception of proportion: that our Colonial kinsmen overrated the commercial value of New Guinea, and that it is unreasonable upon their part to assume that the control of it and of all the adjacent islands in the Pacific² should, in compliance with colonial aspirations, be assumed by Great Britain.³ This is a clear and intelligible view, which may, with much reason, be insisted upon, but unfortunately our Colonial Office have not acted consistently

New Guinea.

¹ Where the 8th parallel of S. latitude cuts the north-east Coast is the boundary on the Coast. Starting from the Coast in the neighbourhood of Mitre Rock on the 8th parallel, and following the parallel to where it is cut by 147° E. longitude, then in a straight line in a north-westerly direction to point where 6th parallel S. latitude cuts the 144th³ of E. longitude, and continuing in a west-north-westerly direction to the point of intersection of the 5th parallel of S. latitude and of the 141st³ E. longitude.

British possessions lie to the south, German to the north of above line; but the former do not include Long Island, Rock Island, or any islands adjacent to New Guinea to the northward of 8th parallel S. latitude.

Pacific Islands.

² In the Pacific the agreement between the two Governments is understood to take this form. Equal rights to the subjects of each Power in the territories of the other: whatever advantages have arisen to German subjects in consequence of the annexation of New Ireland and other places under German flag, to be shared by English traders, Germans enjoying similar advantages in New Guinea. No differential duties, and ships of one Power are not to impede the other. Solomon Islands, New Hebrides, the Friendly Islands to remain open as common fields of action, and their independence is not to be interfered with.

Special British interests recognized in the Ellice, Gilbert, and other groups, German in the Caroline and Marshall Islands, but Samoa is left still unsettled.

³ The Secretary of State for the Colonies says of New Britain, New Ireland, the Solomon Islands, and the Santa Cruz Group, that they are of great size, at a considerable distance from Australia, and inhabited by cannibal and warlike tribes, and that Her Majesty's Government are far from being satisfied that the assumption of the responsibilities of annexation is necessary or justifiable.—C. 3814, p. 32.

upon any such view. Originally they appeared disposed to insist upon it, but when pressed they modified it to the extent that the Colonies were not ripe for the proposed course of action;—then that it was desirable, but that the Home Government would not undertake it unless the Colonies paid the cost, 15,000*l.* per annum; they actually held back—this was in 1875—upon the question of 15,000*l.* per annum, when this was settled by the Colonies undertaking to bear the charge, they refused to endorse the action of Queensland in annexing the eastern portion of New Guinea, and when, at last yielding to pressure from the Colonies, they decided to establish the Protectorate, the proceedings were so leisurely that Germany stepped in and supplanted us in the north part of New Guinea. The Colonial Office, in spite of repeated warnings, still hugged the belief that no interference was to be apprehended here from any Foreign Power, whereas a month later, 11th July, 1883, the German Ambassador was found stating that Germany's thoughts have been turned to New Guinea; and he subsequently said that an association for opening it up had been formed since June, 1883. In all this matter our Colonial Office seems to have been always just too late; while the Colonial and Foreign Offices were discussing, the Germans, who knew what they wanted, proceeded to action.

Perhaps, after all, however reasonable the instinct we have been noticing, the Empire was not yet in the position to occupy the Pacific Islands in any such form as should preserve our occupation from hostile encroachment, and at the same time develop the spots occupied. It would not, I think, have been just, or wise, or even expedient, to have occupied them for the mere purpose of keeping others out; I have no sympathy with the cry, which indeed I do not understand, that these *islands are the heritage of the Anglo-Saxon race.*

If then they were to be occupied by others, I would as lief have the Germans as any other people, nor should the missionaries, who seem to most dislike the Germans, object. German Lutherans were engaged in civilizing savage races long before the Church Missionary Society was established, and for many years, the first twenty-five years I think of its establishment, the clergymen sent out by that Society were Germans.

On military grounds it is, I think, to our interest that the islands in the Pacific,—if they must be in other hands,—should be in two or three rather than in one hand, and, commercially, we must trust to our own energy and capital. As I before said, we have a start, and we deserve to lose it if we cannot keep it.

Notwithstanding a considerable expenditure of time and some labour, I fear that I have not succeeded in adding much to the stock of information upon the subject of this paper. It is scarcely possible to discount the future so far as to assign a real value, commercial or strategical, to these German acquisitions in the Pacific. Leaving New Guinea out of consideration, my own impression is that the German presence here is distinctly advantageous to civilization; it might, indeed, have been better for us if our Australian kinsmen had so far advanced, in numbers as in means, as to have acquired and spread

Writing 31st August, 1883,
Lord Derby says
no Power has
claimed or
indicated a
desire to obtain
paramount in-
fluence or pro-
tectorate over
the group, *vid.*,
p. 33.
C. 3814.
Agents-General,
Memo. 15 to 16.
11th July, 1883.

How much this
country is in-
debted to the mis-
sionaries is shown
on page 830.

over all these islands before this phase of German expansion manifested itself.

Believing firmly in the ultimate pre-eminence of the English-speaking race, I do not believe that that pre-eminence is to be acquired or maintained by a selfish policy of exclusion or coercion; when we come to depend on force for the maintenance of that pre-eminence, that pre-eminence is departing.

What was Germany, with a yearly increasing surplus of men and a surplus of industrial products,¹ to do? The older outlets gradually narrowing, where was she to go? She, too, was only following the same impulse which we have so long followed, an impulse, by the bye, which France has never felt, and therefore it is that I say the French have no real spirit of Colonial enterprise.

In the United States alone German immigrants have averaged 58,000 a year for the last half century, and nearly two-thirds of a million in the last three years.

It seems to me a wise and patriotic policy on the part of Prince Bismarck to direct to territories of Germany's own beyond the sea that redundant population which have hitherto, whilst enriching the lands of Hungary, of Russia, of the United States, and of South America, been lost to their mother country; it must not be forgotten that among this redundant population were to be found many of the strongest and finest intellects as well as of the most vigorous bodies Germany could boast. Such perhaps showed little inclination to return to the state of military bondage which clasps Germany in so stifling an embrace; planted in Germanies beyond the seas they will still be German, their wealth will increase the prosperity of their mother country, their prosperity will augment her strength. In all this Germany has been following the natural law of expansion, and her sons are admirable colonists.²

But if it behoves us to bestir ourselves in the commercial race, it in a greater degree behoves us to look well to our armour; our strong places should be selected with care and fortified thoroughly, not in the half-hearted way which has for years characterized our action in these eastern seas. We have recently seen the evil of want of decision in our mode of dealing with Port Hamilton; if Port Hamilton were necessary for us,—and this time last year when speaking of Hong Kong I urged that we should seek a station nearer Japan,—we should have retained it at all hazards,—if we were not prepared to hold it, we should have been careful to make no sign with respect to it. What has been the consequence of our action? I see in the "Globe" of the 7th instant the "Moscow Gazette" is quoted as saying, "We must thank the English for pointing out to us a place which must in no case be in hostile hands. It is Russia's business now to take decisive

¹ In Germany the imports and exports balance one another, and are 3*l.* 15*s.* per head of population. In France they are as 4 to 3, and are respectively 5*l.* 5*s.* and 3*l.* 9*s.* per head of population. In England they are as 7 to 5, and are 11*l.* 13*s.* and 8*l.* 4*s.* per head of population. The food imports are 28 millions, 29 millions, and 140'5 respectively.

² Nearly six millions of pure Germans are scattered throughout the world, while their descendants considerably outnumber this—in the United States they number 4*½* millions;—at the same rate their descendants throughout the world would be 15 millions.

measures to prevent the possibility of our being shut up by any one in Japanese seas as we now are in the Black Sea."

These strong places should be as few as possible but in well selected positions, carefully prepared beforehand, and, as far as possible, at equal distances apart.

Above all we should have a clear and consistent policy, to which we should firmly adhere; that policy must be to foster and give expansion to our Colonies; the time has past, never to return, when our Colonies can be deemed a burthen to the mother country.

I cannot leave this part of my subject without adverting to what I have long and constantly advocated, viz., the acquisition of the Galapagos or some other island in the Pacific and near the Equator; such a position will be invaluable when the Panama Canal is made; the Canal will cut in the centre our line of communication with Vancouver.

The action of Germany in this Colonial matter, unfriendly as it has been, has been of the greatest service to us, it has bound more firmly the Colonies to the mother country, has given an intensity to the feeling of patriotism which burns in English bosoms, of all classes, and has done more for the cause of Federation,¹ which many of us have so much at heart, than would have been accomplished in years of peace and prosperity. For this, at which he did not aim, we own an obligation to him, the mover of Germany.

In our present position of isolation in Europe, some people see his hand,—they see it in French military resources lavished in Algeria, in Cochin China, in Madagascar, in any enterprise which, while diverting France from Alsace and Lorraine, uses her military strength in acts irritating to neighbouring Powers;—in the aggressive attitude of Russia towards this country, of which a Vienna paper says that Prince Bismarck is not anxious that a conflict between England and Russia should be avoided;—and in the attempts to influence Turkey, if not towards Russia, away from England. It is not my part to affirm this, though it may well be, that Russia and England both weakened by an exhausting war, Germany may remain master of the European situation, all the other nations having already been in turn weakened by her; but this I may say, that I think the German Army and the German Chancellor have been much overrated, and that a little more plain speaking and a firmer policy would have served us better.

The army has
been so cried up,
that they no
longer perceive
that they are
very much as
other continental
armies.

¹ The Federal (Intercolonial) Convention in December, 1883, drafted a Bill to constitute a Federal Council of Australia, in which the matters it should deal with are thus defined:—1. Australasian Policy towards the Pacific Islands. 2. The prevention of the influx of Criminals. 3. Fisheries regulations in Australian waters. 4. Service of Civil Process of Courts of Colony outside Her Majesty's Australian possessions. 5. Enforcement of Judgment of Courts of Law beyond the limits of the Colony. 6. Extradition of Offenders. 7. Custody of Offenders beyond Territorial Limits on ships of Her Majesty's Colonial Government.

Also if referred:—1. General Defences. 2. Quarantine. 3. Patents of Invention. 4. Copyright. 5. Bills of Exchange. 6. Uniformity of Weights and Measures. 7. Marriage and Divorce, C. 3839, p. 26, and C. 3863, p. 147. 8. Naturalization of Aliens. 9. Status of Corporations.

In wading through a good deal of very uninteresting reading in the published Blue Books, it is with real satisfaction that we dwell upon the excellent papers drawn up by the Premiers of most of the Colonies; they are concise, clear, and dignified, and are, many of them, valuable State papers, nor too can we avoid noticing how well the Premiers are seconded by the Agents-General in England, and the conclusion forces itself upon us that they are competent to deal with any question which may arise; let us hope then that they will give themselves to making the best of the existing state of things, assuring them that we, on our part, will afford them all the support, material and moral, which lies in our power.

This satisfaction does not extend to the proceedings of our Colonial and Foreign Offices, the administration of which needs considerable change. It is painful to note in the Parliamentary papers we have had under review, how the Colonial Office never from one moment to another knew its mind, indeed, could never make up its mind; how matters were bandied about between the Colonial Office, the Foreign Office, and Her Majesty's Ministers abroad, until at last the smallest question became so involved that, to use a familiar phrase, now become almost proverbial, *no fellow could understand them*. Much, too, is to be desired in our mode of procedure diplomatically; we seem to have lost the facility of precise definition, the facility of formulating contentious matter in concise and unmistakable terms; indeed, we sometimes seem to have been afraid of placing our own convictions before our own selves. Let us hope that here Federation will introduce beneficial modifications.

I have mentioned above how much German action has assisted Federation,—in Federation, in my humble opinion, lies our hope of the future,—in Imperial Federation, that is, in the intimate union of the mother country with her provinces beyond the seas, lies the future of our race; in this Union is strength without aggressiveness,—prosperity without offensiveness—strength to extend our influence by the arts of peace, not by the cruel, wasteful enterprise of war—prosperity! not to afford material well-being to our children only—but to carry forward the blessings of a higher civilization, until it covers the islands of the ocean as the waters cover the sea. Let other nations emulate us if they will, we should feel no jealousy of their rivalry, should have no apprehension of their accumulated efforts, so long at least as they are in this direction—only thus may the millennial dream of the poet be realized—only thus may the mission of civilization be accomplished—only thus shall it be possible to—

Ring out the shapes of foul disease,
Ring out the narrowing lust of gold,
Ring out the thousand wars of old,
Ring in the thousand years of peace.

Ring in the valiant men and free
The eager hearts, the kindlier hands,
Ring out the darkness of the lands,—
Ring in the Christ that is to be.

TENNYSON. *In Memoriam.*

APPENDIX.

Captain Yule, in the "Rattlesnake," had in 1846 formally taken possession of Cape Possession and the Louisiade Archipelago in the vicinity.

Captain Moresby, in April, 1873, annexed the group of islands at the south-eastern extremity of New Guinea, setting up the British flag at Hayter's Island.

On April 29th, 1875, the Colonial Institute pressed the annexation on the Secretary of State for the Colonies.

Mr. Chester, acting for the Government of Queensland, took formal possession on 4th April, 1883, of that portion of New Guinea and of the adjacent islands not already occupied by the Dutch, viz., in New Guinea all that portion lying between 141° and 155° E. longitude.

On 11th July, 1883, Lord Derby writes to say that Her Majesty's Government are unable to approve this action upon the part of the Queensland Government, adding that the apprehension entertained in Australia that some Foreign Power was about to establish itself on the shores of New Guinea, was altogether indefinite and unfounded, and the inquiries of Her Majesty's Government give them the strongest reasons for believing that no such step has been contemplated.

On 9th May, 1884, the Secretary of State for the Colonies arrives at the conclusion that a Commissioner with large powers should be stationed on the coast of New Guinea, furnished with a steamship independent of Her Majesty's Naval Squadron, the Colonies guaranteeing an annual payment of 15,000*l.*

In October, 1884, Great Britain decides to establish the Queen's protectorate and jurisdiction over the south coast of New Guinea to the eastward of 141° meridian of E. longitude, as far as East Cape, including any islands adjacent to the mainland in Goschen Strait, and to the southward of the Straits as far south and east as to include Kosman Island.

The correspondence necessary for our purpose may be summarized as follows:—

On 26th June, 1883, the Foreign Office replied to the Colonial Office inquiry, in which reference is made to Moresby's having taken possession in 1874 of the islands at the south-east end of New Guinea, to the annexation in 1878 by Her Majesty's Government to the Colony of Queensland, of other islands on the south shore of New Guinea, and to matters publicly known by the presentation of papers to Parlia-

¹ The Legislative Assembly of Queensland points out that the present condition of New Guinea, uncontrolled by any civilized form of government, and liable at any moment to be taken possession of by a foreign nation, was a constant source of uneasiness.—Sept. 1883.

Voyage of
"Rattlesnake."
C. 1566, pp. 1
and 23.

At Port Moresby.
C. 3691, p. 18.

This assurance
does not, how-
ever, allay
Colonial appre-
hension.—Sir T.
Mellwraith.

C. 3863, p. 66.

Annual cost to
Great Britain to
Pacific Squadron
is 157,000*l.*
C. 3839, p. 35.
C. 4217, p. 35.

C. 4217, p. 35.
See above.

ment, as facts showing that the establishment of the Queen's Sovereignty in New Guinea has been long under consideration, and added, that Lord Granville had reason to believe that no Foreign Power would attempt to take possession of or exercise jurisdiction over any part of the territory included in Mr. Chester's proclamation.

C. 4273, p. 2.

On 9th August, 1884, Count Münster announced to Lord Granville the desire of Germany to take steps to protect more efficiently those islands and parts of islands in the South Sea Archipelago, where German trade is largely developed, and is increasing;—adding that the wish of the Australian Colonies to settle on the side of New Guinea, opposite Australia, was perfectly natural, but that there were parts of a wild country on the north side of New Guinea, which might be available as a field for German enterprise.

To this Lord Granville replied that we had no jealousy of German Colonization, that with regard to New Guinea, on which island Germany had *as yet founded no establishments*, the German Government knew that communications had been taking place between the Home and Colonial Governments, and he mentioned in confidence that these communications were nearer a conclusion than was known to the public. Lord Granville, however, thought desirable a more precise definition of the places in which the two countries held respectively a predominant interest, but, he subsequently, the next day, gratuitously as it appears, informed the Count that the British authority in New Guinea about to be announced, would embrace only the part of the island which specially interests the Australian Colonies, *without prejudice to any territorial questions beyond those limits*; this latter was superfluous, and the source of future trouble.

C. 4273, p. 4.
The High Commissioner's authority extends up to the 143° E. long.; Lord Derby's instructions to General Scratchley.

On 28th August he said that the Queen's protectorate is to be established over the greater part of the coasts of New Guinea lying to the eastward of the part claimed by the Government of the Netherlands, or of all the coasts of the island not in possession of the Dutch, except that portion of the north coast between 145° E. longitude and the eastern boundary of the Dutch territory (on the 141° E. longitude), and the islands adjacent, and he added that the extension on the north coast to 145° longitude is to include the Maclay Coast, from Cape Croiselles to Cape King William.

On the 6th September the Foreign Office informed the Colonial Office of what it had told the German Government, and transmitted a draft proposed to be sent to the English Minister at Berlin; to this the Colonial Office did not agree till the 17th. Meantime on the 11th September (?) the German Chargé d'Affaires called at the Foreign Office, and asked that the more precise definition of British and German territorial interests in those regions (South Sea Archipelago) might be dealt with by a Commission.

C. 4273, p. 12.

The German Minister replied that the extension of the British protectorate in the north and north-east of New Guinea had come upon them by surprise, and that they reserved their attitude, adding that the delimitation of areas which interest both sides on that coast should be subject to a friendly understanding by means of a Commission.

On 9th October the British Minister (acting) informed the German Government that Her Majesty's Government had reconsidered the matter, and that the British protectorate would be limited to the south coast and the whole of the adjacent islands, instead of as first proposed, this without *prejudice to territorial questions beyond these limits*, which, however, it would be better to deal with diplomatically, than by a Mixed Commission.

On 1st December, 1884, Prince Bismarck informed our Minister that the King of Samoa was endeavouring to obtain British protectorate, and asked for an assurance that Her Majesty's Government had no intention of annexing the island. The British Minister replied that Her Majesty's Government would respect the independence of Samoa and Tonga, provided they received reciprocal assurances from the German Government, and added that pending the result of the discussion agreed to between the two Governments, Her Majesty's Government did not contemplate any fresh arrangements in the Pacific.

On 15th December, Count Münster called on Lord Granville and said, that as to the proposed engagement the German Government had in 1879 and 1880 expressed their willingness, and were still willing to enter into negotiations for that object, and that with respect to the South Sea Islands to which Australia laid claim, the annexation of a portion of New Guinea had placed Germany at some disadvantage, but his Government took notice of Her Majesty's Government's assurance that no further annexation should take place until after the proposed discussion. On 6th December Her Majesty's Government decided to annex d'Entrecasteaux Islands.

Meantime the Captain of the German ship "Elizabeth" hoisted the German flag on New Guinea north coast, from 141° to Huon Gulf, including the Admiralty, Hermit, Anchorite, New Britain, New Ireland Groups: reported by telegram, 17th December, 1884.

On 19th Prince Bismarck informed our Ambassador that the German flag had been hoisted at three places in New Guinea, and ten places in New Britain, New Ireland, and Sableland, whereupon Her Majesty's Government retaliated by bringing under British protectorate the coast of New Guinea from East Cape to Huon Gulf, including in the protectorate the Louisiade, Sandlark Group, Long Island, and Rock Island.

On 29th December, the German Ambassador announced officially the German protectorate, and added that the establishment of this protectorate was not prejudicial to the proposed Commission, more than the establishment of British protectorate on south-east coast of New Guinea.

On 24th January, 1885, Prince Bismarck said he understood Mr. Scott's communication of 9th October previously had given Germany full latitude as regards the north of New Guinea, Count Münster having said previously that the words above applied to us (Great Britain) *only*, to which Lord Granville found it impossible to agree, the limiting the protectorate to the east coast being without prejudice to *any* territorial questions beyond these limits.

P. 39.
Notwithstanding
which the
Imperial German
ship "Hyäne"
left Sydney 23rd
September, and
the "Elizabeth"
16th October,
to carry out
German annexa-
tion.
p. 62.

c. 4273, p. 25.

846 RECENT COLONIAL ACQUISITIONS BY FOREIGN POWERS,

10th November,
1884.

S. e note, p. 825.

In the meantime, and notwithstanding German assurances, German agents commenced to tamper with Samoa, and forced the King to sign a Treaty for five years, by which a German State Council was established, consisting of a German Consul and two Samoans, "which shall discuss all laws and regulations, and the Regulations it passes shall be published as laws by the King and Vice-King; and a German Officer shall be appointed by the King, in concert with the German Consul, who shall be Secretary and adviser to the King and supervisor of the police system, and shall exercise the functions of German Judge in matters affecting German subjects." The German war ship of 12 guns, "Marie," had arrived there as early as the 31st October, 1884.

17th January,
1885, p. 88.

In what Lord Derby characterized as an important speech, Prince Bismarck mentioned that the agreement to maintain the *status quo* in Samoa was binding on England and Germany, and British Colonial action would be regarded as a breach of engagement, and might lead to immediate annexation by Germany.

On 14th January, 1885, Count Münster told Lord Granville that Mr. Scott's note of November 9th was misunderstood, that the German Government understood that Her Majesty's Government having limited their protectorate to the south-east coast of New Guinea, Germany was free to establish a protectorate on the north-east coast, which would in no way conflict with British interests and projects, and he handed in an *aide mémoire*, which commenced by stating that as early as June last (1883) an association of German subjects was about to carry out on the north-east coast of New Guinea and in the Archipelago of New Britain an undertaking (nature not stated) which had been in contemplation as far back as 1880. This *aide mémoire* in general terms agreed with what had been said, but in relating the purport of Lord Granville's confidential communication, that annexation of New Guinea was nearly completed, it introduced the words *southern* portion; and said that Lord Granville communicated (privately) to Baron Plessen the wish that the Commission should only consider the *smaller* islands, whereas in Foreign Office version it is stated that the Commission is to consider certain other points connected with the South Sea, and no such word as *smaller* occurs.

The "Allgemeine Zeitung" on 27th Nov., 1882, strongly recommends German Government to annex and colonize New Guinea. C. 3617, p. 134. Précis of Colonial Institution resolutions, C. 4273, p. 130. P. 109.

P. 110.

P. 22.

On January 19th Lord Granville expressed to Count Münster the hope that the next German White Book will contain all important communications, especially Sir E. Malet's notes of 17th January (p. 109), as last White Book on Angre Pequena omits two memo. of Mr. Scott of 10th October, 1884, upon that matter, p. 110.

Prince Bismarck stated to Sir E. Malet that at every point at which Germany proposed to found a Colony the English closed in, making new acquisitions, so as to restrict Germany's power of expansion, and added that the words in Mr. Scott's note, "without prejudice to any territorial question beyond these limits," gave him free hand with regard to the north; to which Sir E. Malet said that the words could not bear that meaning, and that in any case they were followed by the statement of opinion that questions regarding territories beyond those which we had annexed should be dealt with diplomatically. The Prince then went on to state the substance of a despatch to Count Münster in May previously, viz., the importance he attaches to the friendship of Germany and England, that if we assist his Colonial undertakings he will assist us nearer home, that if not he must turn towards France on the same lines;

and when pressed by Sir E. Malet to say exactly what he wanted, he replied that the understanding he had now entered into with France put it out of his power to take up the question now as he could have formerly.

As early as July 2, 1883, Lord Derby had said publicly in the House of Lords that it would be taken as an unfriendly act if any other country attempted to make a settlement on the coast of New Guinea, and on 11th July he repudiated and cancelled the action of Queensland in hoisting the Union Jack in New Guinea; with reference to this it is worthy of note that the Premier of Victoria protested strongly against the inaction "which gives an open invitation to Foreign Powers to come and take possession of lands in which no Power can be so interested as Australia."

Then, on 28th January, 1885, Count Münster wrote to Lord Granville (a bit of special pleading), saying that the wish of his Government to come to an understanding about the delimitation of districts in the South Sea, under the sovereignty or protection of either party, was meant to deal with the boundaries of impending annexation, because at that time districts under German sovereignty did not exist in the South Sea; he then inferred that the claim to the whole of New Guinea not under Dutch sovereignty had found loud expression (only) in Australia since the appearance of the German newspaper article in 1883, and added that it was totally unjustifiable—that as yet England had made no legal annexation. He went on to say that the exchange of views resulted in August last in a direct promise that the British protectorate in New Guinea would be limited to the south coast, opposite Australia, and to the islands adjacent, and he then dwelt on the words "without prejudice to, &c., &c.," as implying, not as Prince Bismarck told Sir E. Malet, that the English occupation would not be extended beyond those limits, but that the *status quo ante* should remain, according to which it was legally *lex nullius*, and that after the Proclamation by the British Government, limiting the British Protectorate, the Imperial Government was justified in assuming the unoccupied portion as no man's land, and that it remained open to the German Government to annex it with the full consent of England. He then dragged in the action of the British on the coast of Africa, and the attitude in that matter of England to Germany, and protested against the proclamation of the British protectorate from East Cape to Huon Bay, and over the d'Entrecasteaux,¹ Woodlark, and other islands.

In a separate reply he dealt with Samoa, saying that the German Samoan Treaty was in execution of Art. 7 of the German Samoan Treaty of 1879, and he reverted to the petitions, the text of which confirms the supposition that they were drawn up by British subjects and signed under the influence of deception, and that the absence of disapproval of the conduct of those who induced the King to secretly

Done at the
instance of
Baron Plessen,
who stated that
the inclusion of
the north and
north-east coasts
was unexpected
by the Imperial
Government, and
that according to
(P. 144).

their conception,
the limitation of
the areas which
interest both
(Lord Granville's
despatch, p. 158).
sides on that
stretch of coast
should be the

¹ But it seems, as Lord Derby explained later, that Count Münster did not know where the d'Entrecasteaux Islands were, as instead of lying off the north coast of New Guinea, they are at the south end, contiguous to East Cape (p. 165).

object of a friendly understanding by means of a Commission; and Mr. Scott in writing to Dr. Busch on 9th October, says that if questions should arise with regard to districts beyond the south coast, to which Her Majesty had consented to restrict the protectorate, they should be dealt with diplomatically rather than by Commission.

offer the sovereignty of his country to Great Britain, has contributed to encourage further steps in this direction.

To this Lord Granville, amongst other matters, said that he took exception to Count Münster's statement of what passed between them on 8th August, and in corroboration he enclosed a copy of his despatch to Lord Ampthill of the following day, to the draft of which he says the Count had agreed, and the Government, Lord Granville concluded, declined to admit the validity of the German protest against the extension of the British protectorate on the N.E. coast of New Guinea and the islands adjacent, but that if the German Government was of opinion that the boundary proclaimed by Her Majesty's Officers encroached upon the limits of the German protectorate, and that there had been a mutual misunderstanding, they were willing to examine the question with the German Government in a friendly way.

General T. B. COLLINSON, late R.E.: Sir Charles Nugent has added one more to those extremely valuable papers which he has read at this Institution—papers which contain a vast amount of really important information, which has taken him a great deal of trouble to acquire, and which he has put before us in a very readable and useful shape. I cannot help remarking, first of all, upon the very different feeling that is now apparent in the country towards the Colonies from what there was some ten or twenty years ago. It seems to me that that improved feeling has arisen very much from two causes: first, from the feeling among our commercial classes of the extreme commercial value to them of the Colonies; and, secondly, from the very strong evidence we have received that when we come into a time of trouble and danger in war we shall receive an amount of assistance not only large in itself, but so readily given that it has quite surprised us. These two things, I think, have changed altogether the feeling and the idea of the Colonies in respect to the mother country. No doubt when Great Britain was founding these great Colonies her first thought probably was finding a field for her superabundant population, and, secondly, finding an outlet for her commercial enterprise; but she has been unwittingly doing a great deal more than this; she has been founding new empires, and that opens a very serious consideration with regard to the responsibility of the mother country towards these great Colonies. I consider that the mother country has got a very important responsibility and duty towards them in this way, that looking forward to the time when they will be really large and independent communities, which must some day happen, it is our duty to do the utmost in our power to take care that their legitimate growth shall not be impeded in any way, but that they shall be eventually of sufficiently large size to hold a sufficiently powerful population, and have a sufficient commercial and productive territory, so that they can hold their own in the world. We have got three principal interests ourselves in looking forward to that growth: first, we have got the interest of finding a field for our surplus population, which is increasing so rapidly; secondly, we are beginning to find that the Colonies are likely to be our great field of commerce in the future; and, thirdly, we are beginning to see that it is almost indispensable for our future welfare and for holding our position in the world that we should have the assistance of the Colonies in war-time. Now when we look to the two principal Colonies that have been under consideration this afternoon—Cape Colony and Australia—when we look at the Cape we see there what a very small portion of South Africa it at present holds, and we know also, from the information that Sir Charles Nugent has given us, that north of that little red patch there is still a very extensive country which is quite fitted for the occupation of Europeans. I, therefore, think it is a very important duty for the mother country to do all in its power to ensure that the Cape Colony should continue to be able to spread north-

ward, so as to include all the territory that is suitable for the occupation of white people. Because we must recollect this, that when we talk of the future of Africa and the future Powers which will have dominion in it, that Power which has the greatest white population there will exercise the greatest power over the whole continent; because we must expect that the white people will always be the dominant people in the earth. And not only is it necessary to give a fair opportunity for that Colony to extend itself as far as the white population can live, but even beyond that, in order to acquire a district where tropical productions can be produced, which will be valuable and useful to that growing dominion. It is necessary we should ensure that, that there may be no impediment put in the way of such acquisitions by the Colony. When we look at Australia, there is a rather more extensive view before us. As Sir Charles Nugent has pointed out, the native inhabitants of almost all the islands in the Pacific are decreasing, in fact, we may confidently expect that they will eventually die out, and there will be space available there for civilized occupation and cultivation by white people. Now, although a great many of those islands are tropical islands, and therefore not suitable for the labour of white people, still, as in the case of Cape Colony, we must expect that the country which is capable of producing the greatest amount of white people in that part of the world will be the country which will really exercise the greatest dominion in the South Pacific, and therefore I think we should be very careful that all the Australian Colonies have every possible opportunity for extending their dominion to the islands north of them, that they can legitimately expect. Without interfering with other countries in their desire to extend their Colonies, I think we should look with a considerable degree of jealousy upon anything which is likely to interfere with the legitimate expansion of Australia. Sir Charles Nugent has mentioned the subject of Port Hamilton in the Corea. As I was some years ago strongly advocating the occupation of some such place in the North China Sea, I will venture now to express my gratification that some step at all events has been taken in that direction, although it seems at the present moment to be an extremely hesitating step. My idea in advocating such a step was that we must certainly expect that the Russian naval power in the North Pacific will grow greatly, and that probably their commerce will also grow there, which will extend their commercial marine, and that therefore it will be very necessary for us, in order to protect our commerce and to prevent interference with other countries in alliance with us, that we should have a strong naval position in the North Pacific. I also quite agree with Sir Charles Nugent that it is very desirable to have some position as near as possible to the Gulf of Panama for the same reason. The points that I advocate, therefore, in respect of Sir Charles Nugent's paper, are that the mother country should do all in her power to secure the legitimate expansion of the Australian and the Cape Colonies.

Mr. FREDERICK YOUNG, Honorary Secretary Royal Colonial Institute: I venture to trouble the meeting for one or two minutes while I make a few remarks on the important paper we have just heard. I am induced to rise thus early in the discussion in order to enter a protest against a sentiment which I have just heard from the other side of the room. The gallant gentleman who preceded me alluded to the possible foundation of new empires, which this, the mother country, was fostering. In order that there should be no misunderstanding on this subject, I wish to say that, while I heartily sympathize with him in one respect, at the same time I must protest against the view of that result being the inevitable consequence of the expansion of England. And now to refer more especially to the paper before us. In the opening remarks of the gallant lecturer, he says that he himself has no apprehension of the extension of Colonial enterprise on the part of other countries. As an Englishman I quite agree with that sentiment. We have no right to expect that we are to appropriate the whole of the unoccupied places of the world; at the same time it is a matter of the greatest importance, considering the vast and comprehensive Colonial Empire we possess, that we should take care to watch the development of that empire, and to guard against the possibility of other and rival nations occupying positions with regard to it, which, in the case of war, might be of serious strategic importance. It is of course impossible, in the brief time allowed for

discussion, to touch on every topic of this exhaustive paper; but I notice that in spite of the little apprehension which Sir Charles Nugent appears to feel throughout his paper, he alludes to a great many questions of a kind which deserve our most attentive and thoughtful consideration. One especial point he urges upon our attention—and it is one I think we cannot too carefully regard—viz., the supineness of our own successive Governments with reference to questions such as that which has been brought before us this afternoon. I happen to be very familiar with one of the subjects to which he refers, at some considerable length: this is, the question of New Guinea. In alluding to it, I wish it to be quite understood that I do not desire to complain of the action of any particular Government, because I have been familiar with this question for the last ten years, during which time both political parties have been in office. An institution with which I am rather prominently connected, the Royal Colonial Institute, has taken it up very strongly and very persistently. On the 29th April, 1875, a very influential deputation was organized by the Institute, and a memorial of a very exhaustive and argumentative character was presented to the then occupant of the Colonial Office, Lord Carnarvon, urging most strongly the necessity of our becoming possessed of the whole of the unoccupied portion of that great island. One of the strongest points we made use of at that time was the fear lest some other nation, and most especially Germany, might, as an enterprising Colonial Power, take possession of some portion of New Guinea, if we did not precede them in doing so. There was one very important argument used in this connection. We urged that we only asked that Great Britain should take possession of the part of New Guinea—a very extensive one, no doubt—which the Dutch did not claim. Now it is very well known that this portion of New Guinea which the whole world has tacitly admitted the Dutch have acquired, has not caused that Power any particular expense. Holland has been allowed by other European nations to take it, and we asked at the time I refer to, that we ourselves should do the same as the Dutch had done, and claim for Great Britain the whole unoccupied portion of New Guinea. Since that period, from time to time we have continually urged on successive Governments, whose Colonial Department was presided over in turn by Sir Michael Hicks-Beach, by Lord Kimberley, and lastly by Lord Derby, what the result would be if we did not take the bold, and, as we thought, the politic course which we recommended on behalf of the Colonies. In 1882 I had the honour of entering into a correspondence, first with Lord Granville, as Foreign Minister, who referred me to Lord Derby, as Colonial Minister, calling his attention to the fact that the Germans were seriously thinking of possessing themselves of part of the Island of New Guinea. In the official reply I received, the following sentence occurs:—"Lord Derby desires me to state that the proposal that a portion of that country should be annexed by Great Britain is one Her Majesty's Government are not prepared to entertain, and that his lordship has no reason for supposing that the German Government contemplated any schemes of colonization in the direction indicated." Unfortunately we now know the result of this fatal blindness on the part of our own Government, and what Germany has since done in the matter. I ought to apologize for taking up your time, but I could not allow this paper to be discussed without making some allusion to the question of New Guinea, in which I have long felt a deep interest, from its contiguity to Australia, and its consequent importance to that portion of the British Empire.

The CHAIRMAN: I am under the necessity of leaving in order to attend in another place, and, therefore, I shall venture to ask Admiral Fanshawe to take the chair. Before doing so, I may be perhaps allowed in one word to express my sense of the extreme value of the paper which we have heard from Sir Charles Nugent. I do not think that we can insist too much upon the importance—the absolute necessity—of the Colonies to the Imperial Empire of Great Britain. There can be no doubt whatever that anything which impaired the prosperity of the Colonies would be a loss which would be felt by every person in this Empire, sensibly within a very short period indeed. Some people have entertained the idea that it is a matter of small importance whether we have Colonies or not—that it is of very small importance whether we have a foreign policy or not; but I think very few persons who give the slightest consideration to the social and economical condition of Great Britain, can have any doubt whatever that both a foreign policy and a colonial

policy are as essential as light and air to the Empire of Great Britain. We possess within the soil of Great Britain, a limited capacity to produce food, and to produce the necessities of life for the people who live here, and we are dependent for more than half our population upon the food which is brought into this country, and to a still greater extent for the employment which our trade and commerce produce. Unless that trade and that commerce are secured to us it is obviously impossible for the people to exist at all, certainly not to exist in any condition of prosperity as they have in the past. It is, therefore, that I so entirely agree with the spirit of the paper which we have heard, that we require to have in all our relations with our Colonies and with Foreign Powers a firm, a consistent, and an honest policy. I am not now venturing to speak politics I hope—certainly not party politics, I should entirely disclaim that—but it does seem to me to be a matter of the highest importance that there should be something like continuity—something like a sense of responsibility, as a nation, in the conduct of our relations with our Colonies and with Foreign Powers, so far as our Colonies are concerned. I agree with Sir Charles Nugent in his remark that we cannot pursue a selfish or a "dog-in-the-manger policy"—that we cannot desire to exclude Germany or any other Power from countries which we are not able ourselves to occupy, and which we are not at this moment occupying. I think it would be simply monstrous to assume that, because at some distant period, which is not yet seen, those islands or territories might become useful to ourselves or to our Colonies, therefore we are to exclude others and not ourselves to occupy those territories and those islands. It seems to me that any loss we have sustained, or any injuries we may possibly suffer from, are due entirely to that absence of distinctness and clearness as to what the real interests of this country are, rather than to any spirit of aggression—properly so called—on the part of those whose conduct has been the subject of complaint. I admit there have been circumstances which are to be regretted on the part of allies—an ally especially with whom, it seems to me, it is the interest of this country to remain on the most friendly and cordial terms. That friendliness and that cordiality might have been maintained, and I believe the objects sought by Germany and sought by Great Britain and our Colonies might have been secured, by a straightforward, a frank, and a bold declaration of what the interests of the country are, and by that honest self-reliance which distinguished Englishmen in the past, and which I believe will distinguish Englishmen in the future. In speaking of the policy, or absence of the policy, the timidity which has been shown, or the timorousness which has been shown by departments of Government, I quite admit there is much to be said in regard to some of my own friends as with regard to some of the members of the present Government. But I do not wish to attack a particular party or Government; there seems to have been a timidity inherent to the office of the Administration: it seems to have, as it were, permeated the responsible Minister or the official, and to have deprived him of the power of looking at the circumstances which were before him with vigour, with a sense of personal responsibility, and with that full care of the great interests committed to his charge which attaches to a Minister of State. I do not wish to detain you, but I cannot help again saying that I think we owe a great deal to Sir Charles Nugent for the excellent paper which he has read to us. He has remarked in the concluding words of his paper upon the great advantage of Federation, the union in spirit and, as much as possible, in substance, of the Colonies with England. I do not know what may be before England, or what may be our future, but I am quite certain of this, that the spirit of self-reliance and resource which distinguishes the Colonies, which are necessary to the Colonies, will be a great advantage, added to the perhaps greater caution, and perhaps as a leaven to the party politics of this small island. If we can only bring them in to us on terms which shall entirely respect their own complete right to manage their own affairs and conserve them in the interests of the Empire which has given them birth, and with which in reality they are as completely identified as any Englishman who may live in London, I think we shall add greatly to the stability of the Empire and do much to secure that peace which is the greatest interest of this country and the greatest—I believe the dearest—object of every true Englishman.

The chair was then taken by Admiral Sir E. FANSHAW.

Captain J. C. R. COLOMB: I am sure that every one present feels very much

indebted to the gallant lecturer for the vast amount of trouble and research which he has undertaken for the benefit of the Institution and of the Services at large. Of course this question has very many aspects, and it is very hard to approach it as a whole. Wisely I think the lecturer—being well acquainted with his facts—has really not attempted to boil his paper down into any distinct outline of a crude or settled policy; he deals with one or two general principles, and I think that shows the knowledge he possesses of the subject, because the difficulties of approaching it fairly are very great. There are just one or two remaining commentaries that I should very much like to contribute to the discussion. There is one point which I do not think is sufficiently clear in the paper—the main national point that underlies it all—and that is the essential necessity of increased naval means. He indirectly talks about various places that must be made safe; but, after all said and done, what it all comes to is this—that whether these acquisitions are to our advantage or disadvantage, the expansion of other countries in these distant seas necessitates and creates a constant, ever-increasing reason for increasing our naval means. Sir Charles Nugent talks about the Colonies receiving “a very little assistance from the mother country”; that very little assistance really means the maintenance of the provision for safety of the sea by our mother country alone. I should be very glad if he could modify that sentence at the beginning of his paper a little before it is published. What we want is to increase British naval means, and to encourage the Colonies to make one common cause with us for preserving our common interests at sea in war. Of course the primary question of naval defence is ships, men and guns; but there is a military question behind it, because we all know the freedom of your fleet depends upon your bases being held by military forces. The main reason why the French have not succeeded as a colonizing race is simply this—that since the Revolution of 1789, and the resulting land laws, it has had a diminishing and not an increasing population. The first condition which causes a Power to be a colonizing Power is surplus population; and we need therefore never fear the French as a rival colonizing Power. The important part of the paper in a naval and military point of view is, to my mind, this, that the actual possession of territories and the absorption of territories by other European Governments, though they may never become great Colonies, still is a reason and an excuse for the accumulation of foreign forces in seas where they have not appeared before. The case of Tonquin is a most important fact, as the gallant lecturer states—the fact that at the other side of the world there are considerable French forces which have been drawn there by circumstances of annexation. If friction were to occur between the Government in Paris and the Government in London, these French forces are ready at once to strike a blow in that district of the world, while we have no settled plan and no Imperial arrangement by which we can suddenly reinforce our own possessions at any point of the world except from our home dockyards. These colonial acquisitions and this natural attempt at extension by other Powers teach us that the time has passed when we can continue with safety to localize and centralize both our administrative system, our Reserves, means of supply, and repair when wanted. As a matter of detail, I maintain a very grave mistake was made from an Imperial, a strategical, and political point of view, when we abolished the system of having a flying squadron, and for this reason: when the French accumulated naval forces in China we had no squadron available for general service, all our ships being detailed for stations, and therefore we had to wait for what might turn up. Had we had a flying squadron it would have been very easy to have sent it to that part of the world, and we should then have been prepared to meet force with force in those seas. In spite of all these acquisitions by other Powers, the gallant lecturer had said, “We had a fair start.” Now just take the commercial aspect of this question alone: if you draw a line from where the Equator cuts Borneo towards the South Pole, and another from Cape Horn towards the South Pole, and take that as the boundary of the east and west and the Equator as the north boundary, the British commerce in that district of ocean is about 130,000,000*l.* in the year, while the French commercial interests in that are only 2,500,000*l.*, and the German interests are equally insignificant. Therefore we have a pretty good start, but with such interests at stake we are bound to look at these acquisitions not as a possible rivalry that may stamp us out, but as matters that require to be watched with a

view to organizing such a defensive system in common with the Colonies by Federal arrangement as to insure that at all times and in all places we shall be able distinctly to hold our own on an intelligible, a definite, and a pre-arranged plan.

Mr. KERRY-NICHOLLS: We have listened to a very able paper and one which deals with a question of vital importance at the present time. I may say it is a question on which the fate of empires may depend. The gallant lecturer has referred to many points in Australasia, and I would like to refer to some of those countries which have been pointed out. With regard to New Caledonia, I think we have no cause to regret its acquisition by the French other than as a strategic position, and also for its possession as a penal settlement. As to its commercial value, I think that it is not very great. But I do not agree with the lecturer when he states that he is of opinion that the acquisition of the South Sea Islands is not of value, or not likely to be of value to other Powers. I think myself that many of those islands are of vast importance, both from a naval and a commercial point of view. Take the New Hebrides, which at the present is a no-man's land, and which by a peculiar and remarkable understanding, I believe, existing between this country and France, is in the position of a country to which the principle of "hands off" is applied. Those islands, I think, from a commercial and strategic point of view, are of the utmost importance. In them are some of the finest harbours in the South Seas, and notably Havaannah Harbour, in which the whole of the British Fleet might ride at anchor in safety. Again, as to their products, I think eventually they will become to Australia what the West Indies were at one time to this country; they will be the source of wealth, in my opinion, for tropical products and other commercial productions. The sugar-cane is indigenous, the cocoa-nut, the banana, and other things are valuable. I may say that so long ago as 1877 I addressed communication to the Earl of Carnarvon—having visited these islands during a yachting cruise some years ago—and pointed out their importance to Australasia, and their likely importance to Great Britain as naval depots. Coming to New Guinea, there is great difference of opinion existing as to the value of that country both in strategic and also commercial points of view. I have been to the southern portion of it during the same time to which I have referred, and I do not hesitate to say, from what I saw, that it is a country of great promise. In 1879 I addressed a communication to Sir Michael Hicks-Beach, strongly advising its annexation by the Imperial Government. It possesses large rivers and a wide territory. No doubt the southern portion, immediately to the north of Australia, is unhealthy and low, but the south-eastern portion, and along the eastern coast, is under the influence of the south-east trades, and is comparatively healthy. On the western side there is a good deal of rain and dampness. Nothing has been proved as to the existence of gold, but there is every reason to suppose that when the country is more fully known, its mineral resources will be developed, and I believe that they will be of value to any country that may acquire them. Time alone can prove the importance of the country as a Colony to us or to Germany, but my opinion is that with the gradual expansion of civilization and of trade in the South Pacific, New Guinea is destined to become one of the most prominent countries of that portion of the globe.

Mr. FRANCIS LABILLIÈRE: Sir, having, from the earliest period of the discussion of the question of New Guinea, taken a deep interest in the subject, I venture to address a few observations to this meeting. As long ago as 1874 I collected a number of facts upon the subject, and I ventured to send them in a letter to the Secretary of State for the Colonies. That letter appeared in the first page of the first Blue Book which was published on the subject of New Guinea in 1876, and was sent from the Colonial Office to the Governors of the different Australian Colonies, and they and many public men of Australasia, as well as the Legislatures, expressed some very valuable opinions on the subject showing the importance of New Guinea to the interests of Australasia, and also to those of the Empire at large. Ever since the question was first brought to the cognizance of the Colonial Office, repeated facts have, as Mr. Young has pointed out, been laid before the Government showing the importance of New Guinea, and over and over again the same reply has been given, that no Power was supposed to have any intention whatever of taking possession of the Island, as if any Powers who had any intention of

annexation would let us know what they were about, till they had matured their purposes. We know very well that the Germans very quietly took note of the innocence of our Government with regard to any information on the subject, and when the time had arrived, were ready. They acted whilst we were delaying. And now, Sir, I thoroughly agree in everything that has been said by those who have told us that they are not jealous, and do not wish to prevent other countries from acquiring Colonies, and least of all do I desire to see Germany prevented from acquiring Colonies; but the question of annexing New Guinea and those neighbouring islands of Australia, was not merely a question of our Government becoming possessed of a little additional territory, but it was a question of making the enjoyment of our existing territories more complete and perfect. Why is it that we have had in so many quarters the Imperial Government neglecting the outlying interests of the Empire? It is simply because the machinery of Government which we have in this country, has to perform double functions which it cannot adequately discharge. The same Government has to perform the function of attending to external affairs and of attending to the internal concerns of these United Kingdoms. Only last night I was at a political meeting, and I heard a gentleman dilating upon the much greater importance to the people of this country of attending to the political concerns of the United Kingdom, and he quoted one of the Proverbs, "The eyes of a fool are in the ends of the earth." Now I do not think that we can accuse our Government, the occupants of the Colonial Office, of coming under the description of that Proverb. If their eyes had been a little more in the ends of the earth it would have been much better, not merely for Colonial interests, but for the interests of the mother country herself. The whole question lies in this, we want some Imperial authority, we want some authority representative of the whole Empire, which shall keep its eyes in the ends of the earth and all round the Empire, watching over and dealing with our common interests, and we want that federal authority to be distinct from the provincial authorities of the United Kingdom. By a division of labour, by some system of Imperial Federation alone, can we have the general interests and the external interests of the Empire properly dealt with by one body, as they are in Germany and the United States, and another body of men efficiently watching over the provincial concerns of the United Kingdom; and then by co-operation with our Colonies, by organization of our defences, by the maintenance of those coaling stations and fortifications which military and naval men, above all others, know how to appreciate, the territories of our Empire will be rendered secure, our commerce will be free from attack, and, being strong, we shall be less likely to get into wars than if we are divided and weak.

MR. J. C. BRAZ: As an Australian, I should like to take the liberty of thanking the gallant lecturer for the paper which he has read, and also for the spirit which has prompted him to make the remarks that he has made concerning Australia and the British Colonies generally. I gather, by what has been said, that all the speakers do not entirely agree with Sir Charles Nugent's statements, and for my own part I must say that I think the British had a right to take possession of New Guinea, and of the islands in the South Pacific, even though they were not at the moment actually ready to occupy them. And I believe that we have that right because we have the only Colonies existing in those seas at the present time. We can hardly call New Caledonia a Colony; a place simply established for the settlement of convicts is not a Colony in the sense in which we Australians speak of Colonies, and I am sure it is the wish of Australia, and I hope it is the wish of people living in the mother country, to prevent the establishment of convict settlements in the immediate neighbourhood of any British Colonies. It ought to be a matter of recognized international law, that each country should banish its convicts to some neighbourhood where it can have complete control over them, and not to send them to such a place as New Caledonia, where they have frequent opportunities of escaping and becoming a source of annoyance to those living in adjacent Colonies. Then, again, if the object is to establish foreign military stations in these parts, these stations must, of course, be a constant source of menace to the Australian Colonies. I think, therefore, we have a right, so far as these islands in the South Pacific are concerned, to ask the Imperial Government to take possession of them and control them. In 1875, I believe, almost every Parliament in Australia passed

an Address to the Imperial Government in England, asking them to annex the Island of New Guinea, and although we are to-day blaming the Liberal Government for their conduct in this matter, we must not forget that in 1875, when a Conservative Government was in office, they were no more ready to acquiesce in the demands of the Australian Colonists than the Government of to-day. I do not think the remedy for this is to be found entirely in the remarks of my friend Mr. Labilli  re. I believe, after all, the Government must reflect the opinion of the people of the country, and when the people of Great Britain are aroused, as I believe they are being aroused day by day at the present time, to the importance of maintaining the connection which exists between the Colonies, then the Government will carry out the will of the people, and do what is necessary to maintain the good feeling and promote the prosperity of the Empire at large. I know myself that the Government, after all, can only carry out the will of the people, and perhaps of late years it has seemed to be of more immediate importance to determine who are to be allowed to vote, or what extension of the franchise there should be, than it has been to determine how we shall maintain and increase the prosperity of our Colonies and the Empire at large. I am glad to believe that from papers such as that read by Sir Charles Nugent to-day, as well as by events that have recently transpired, the people of England are being aroused to the desirability of taking active steps not only to maintain, but to strengthen the ties that exist between the British Colonies and Great Britain; and I can say, as an Australian born in the Colonies, that the feeling of Australia is not to act with a view to establishing separate Empires, but simply with a view of increasing and strengthening the importance of the British Empire.

Admiral ARTHUR: There is just one point I should like to mention on the question of occupying Port Hamilton. I think we are not all of us aware, as it has not been mentioned in the public papers, the reason why the susceptibility of the Russian Government is so great on this point. I therefore take this opportunity of mentioning a fact, namely, that in the year 1859 the Russian Government established a coaling station at Tsu-sima, situated about 60 miles north-east of Port Hamilton. On our Government becoming aware of this, and having obtained authority from the Japanese Government, Admiral Sir James Hope went there with his flag-ship and gave the Russians forty-eight hours to clear out. They said they were only trading there. However, the question was not discussed at all, and they had to leave. So, of course, when they see the English Government coming not exactly to the very spot from which they were ejected, but to a point only 60 miles off, you can easily understand why they are more susceptible than they might otherwise have been.

Sir CHARLES NUGENT: Ladies and gentlemen, I will endeavour to occupy as brief a time as possible in replying to the criticisms that have been raised on this paper. Perhaps I had better first deal with Captain Colomb's criticism. If I understand him rightly, he finds that the paper falls short of what he would wish, inasmuch as it does not treat of the naval measures that are necessary to secure the position of the Colonies. To this I would say that it is not possible in such a paper to go back to first causes; if that course were taken, the paper would be of such unreasonable length, and the material would be so unwieldy, that before the end of the subject was reached, all interest in it would probably be lost. Therefore, I assumed, although I do not state it, that the mother country does its duty, and I rather viewed this colonial acquisition with distinct reference to our holding upon the seas the position which befits the Empire. . . . Whether that be the right way of treating the paper or not may be a question, but at all events it is an intelligible way of treating it. Mr. Nicholls does not agree with me in the view that the islands of the Pacific are commercially of not very material advantage to the European nations. My view of them was rather as individual islands than in the aggregate, and yet if you take them in the aggregate and draw any conclusion as to the future, which I confess I cannot, excepting that there is a general unsuitableness to European life throughout them, I do not think there is much to induce the belief that commercially they will be of very great advantage. I am very glad to have had the criticism of an Australian gentleman, who I believe has been a Premier in one of the Colonies. I think if he will look at the paper again he will see that

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my object was rather to put a many-sided view of the case than to state any very distinct view, but still I am prepared to stand by my text in this much, that I do not think we ought to express a selfish policy, and I cannot agree that it would have been just or expedient to have entered upon places which we were not prepared to develop, simply for the purpose of keeping other people out. I may, perhaps, remind him that,—agreeing thoroughly with him and with what both Mr. Young and Mr. Labilli re have said, and I may take this opportunity of stating that I am perfectly aware that no two individuals in England have done more, or even as much, for what has been longed for by many of us—Imperial federation—as these two gentlemen—indeed, I had the good fortune to be present at a meeting of the Colonial Institute a few nights back, and I heard the Duke of Manchester in summing up say that Mr. Labilli re had done more than any man in England for this particular purpose,—I find in the papers that however unanimous at first the Colonies were, yet a very important Colony at the last did to some extent hold back, I allude to the Colony of New South Wales. This gave rise to some very able papers both from the Premier of Victoria and the Premier of New South Wales, and there was a good deal of justice in the view, from my standpoint, that the Premier of New South Wales took up. I think the general tenour of his line of argument was that it was not good to press the mother country unduly in this matter, that she ought to be—I don't say she was, but she ought to be—from her position better able to judge of Imperial interests than the Colonies were. I only mention this to show that perhaps the Australians are not altogether united on that particular point. You have heard what Admiral Arthur has said about the coaling station near Port Hamilton; it only shows that we ought to have been well prepared to do whatever we thought necessary at Port Hamilton, and having done it, under no pressure to recede from the position; in point of fact, however, we have not, I believe, withdrawn from it. Mr. Smith, in the brief remarks he made, said that he attacked no party. I think if you will read the paper through, you will find that I have introduced no names, neither do I refer to the Tory party nor to the Whig party, in fact, my sympathies, if I may say so, would be rather with the present Government than the other, but still whatever the party in power, it cannot be denied that the Colonial Office and the Foreign Office were always too late. Mr. Young spoke of Lord Derby's utterances. You will find them given in the margin of the Appendix. In fact, there is some general information in the Appendix to this paper useful as showing the way in which the two offices dealt with the questions as they arose, and also showing how a certain amount of reticence in saying things which they thought might be unpleasant to foreign Ministers did afterwards give foreign Ministers an opportunity to pass them by and affect that the words uttered did not bear the meaning they were supposed to bear at the time they were uttered, and which, no doubt, those to whom they were uttered understood them to bear. I have only, ladies and gentlemen, to thank you for the kind attention with which you have listened to me.

Admiral Sir E. FANSHAWE: It only remains for me to give expression to your desire to return our cordial thanks to the lecturer for a lecture so admirable in itself, and which has had the result of calling forth most valuable opinions from gentlemen who are the most able to give them—the Secretary of the Colonial Institute, Mr. Labilli re, and Mr. Bray, a distinguished gentleman from the Australian Colonies, besides others who have addressed us. It will also have the effect of giving another fillip to that feeling throughout the country which is now urging on the federation of the Colonies, and calling the attention of this country to the necessity of intimate relations with our Colonies to a degree that has never existed before. We have spoken of the half-heartedness and dilatoriness of successive Governments, but in this country,—as we all understand,—until the country itself is aroused to take an active interest in that or any other subject, no human being will make the Ministers of the country act for themselves beyond their ordinary routine duties, and looking out (I should say) for the next elections. But with the country at their backs, I have no doubt that they will do whatever is necessary and desirable for the entire union of the Colonies with this country, which is essentially necessary for the salvation of this great Empire. I have much pleasure in returning your thanks to the gallant lecturer.

Wednesday, May 20, 1885.

PROFESSOR SIR FREDERICK A. ABEL, C.B., F.R.S., in the Chair.

A SYSTEM OF AIR TORPEDOES : WITH REMARKS UPON
THE LATE ATTEMPTS AT AIR NAVIGATION FOR WAR
PURPOSES.

By FREDERIC A. GOWER, Esq.¹

The CHAIRMAN : It is scarcely necessary for me to introduce to you formally Mr. Gower, the well-known collaborateur with Professor Graham Bell in the successful development of the telephone—a gentleman who has, by his practical results and scientific attainments, gained for himself a reputation which will lead us not to consider lightly any statements which he will bring before us. The subject which he is to deal with this afternoon is comparatively a novel one, that is novel so far as a discussion of the subject goes ; but we have during the last half century been from time to time reminded that it is very short-sighted to deal hastily with any suggestion which at first sight appears purely theoretical, or even purely visionary. We know in the case of the telephone, for example, that even eight or nine years ago it would have been considered almost visionary to believe that friends and business acquaintances would freely converse as they do now from distant parts of this metropolis on all subjects with the greatest ease. And, again, to turn to a matter that is more immediately cognate to the subject of to-day's discussion, fifteen years ago he would have been considered a visionary enthusiast who would have predicted that every Navy of any important Power would consider itself imperfect unless provided with the locomotive torpedo ; and so, as we have seen the successful development of locomotive torpedoes under water, we may, it is possible, I might even go so far as to say it is not improbable, expect to see in the future the successful development of a system of aerial torpedoes. However, I will not venture to predict, I will only ask you to receive attentively the information and the views which Mr. Gower is good enough to place before us to-day, and to give them your careful consideration.

THE question to which I ask your attention to-day may be very easily stated. Can a sudden expansion be given to existing methods of attack in war ; can armies, forts, and arsenals be seriously assailed from that quarter in which attack is not now expected—the air above them ? My belief—from four years of study and observation—is in the affirmative, and as means to this end I propose simply to transfer to the upper levels the general plan of torpedo warfare, upon a larger scale, and with its effective range indefinitely extended.

The term "air torpedoes" naturally suggests itself for such a system, but is not quite descriptive, inasmuch as each supporting aérostat may be made the means of delivering several missiles with any desired interval between them, resembling rather the action of a

¹ Lost his life when crossing the Channel in a balloon from Cherbourg in July.—
ED.

battery, and I have, therefore, generally used the term "aërial batteries," for greater accuracy of definition. Such batteries, like marine torpedoes, fall under two heads: those directed through the air by conscious agents whom they carry, and those sent upon a favouring wind to deliver their fire by automatic means. Study and observation lead me to conclude that the latter class contains all the immediate importance of the scheme, and it is a system upon that general plan which I have to bring before you.

Its leading feature is, and has for some time past been, under due consideration by Her Majesty's military advisers, and I should, therefore, under ordinary circumstances, be precluded from bringing the subject in its present stage to your attention, and this more especially as I believe there is little or no doubt suggested as to the probability of the apparatus which I have devised accomplishing substantially its intended purpose. The point of general interest which does arise (and which chiefly leads me to bring the matter under discussion) is as to the probable effects of this mode of attack in war if carried into practical use. Upon this head there appears to be no information derived from actual experiments, and that for the simple reason that it is difficult to carry out a series of such experiments with due regard to the rights and comfort of the public in time of peace; while an important element in the system—the probable effect upon the *morale* of armies—is obviously one which cannot be settled in time of peace at all. There is, moreover, behind all this, the fact of a still-threatened outbreak of war seeming to make it my right, and perhaps also my duty, to raise the question as to what a resort to armed force by civilized Powers at the close of the nineteenth century may be made to mean.

In attempts at navigable balloons, there is little to add to facts with which you are already familiar, and which were admirably put forward by Lieut. B. Baden-Powell, in a paper read before you on Friday, June 1, 1883, Sir Charles Nugent being in the Chair.¹ Henri Giffard, inventor of the injector for steam-boilers, made an aérostat in Paris, in 1852, which carried a steam-engine working a screw at the rear of the car. He attained a slight forward motion in calm air, and could also deviate from the line of the wind in moderate breezes. But in ascending from the Hippodrome with a fresh breeze, he was carried at once to leeward. In 1872 M. Dupuy de Lôme obtained a slightly better result by substituting the muscular force of eight stout labourers for the steam-engine, but still nothing sufficient to encourage perseverance in the trials, as the principle of propulsion—that of the screw—seemed incapable of producing practically-important results unless applied upon the largest possible scale. In 1882-83 I carried on experiments near Paris with a steam balloon having a lifting power of two tons, in which a new and promising principle of motion was involved. The machine is shown in Fig. E now before you. It was, as you see, a cylindrical balloon 100 feet long by 33½ in diameter, and contained not far from 2,500 cubic yards of hydrogen. The steam-boiler was

¹ See Journal, vol. xxvii, page 735 et seq.

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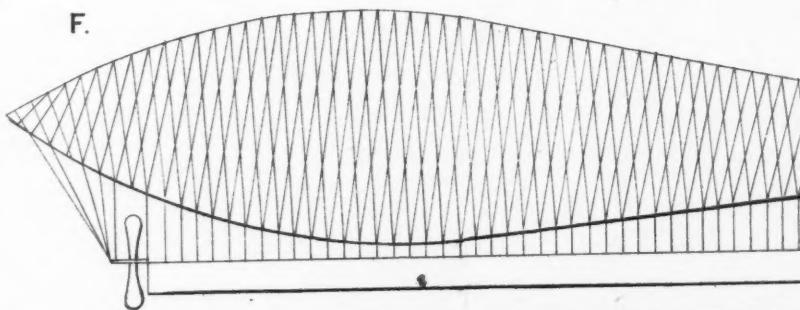
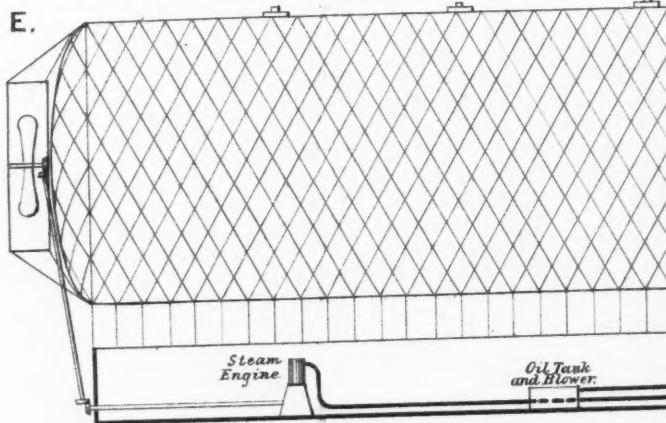
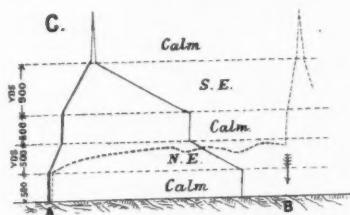
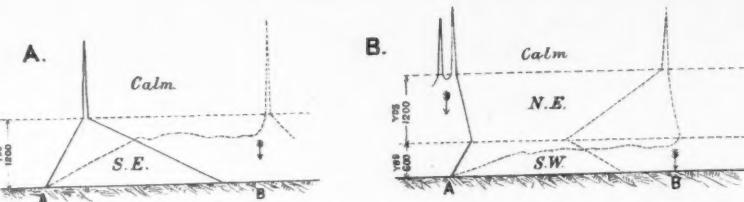
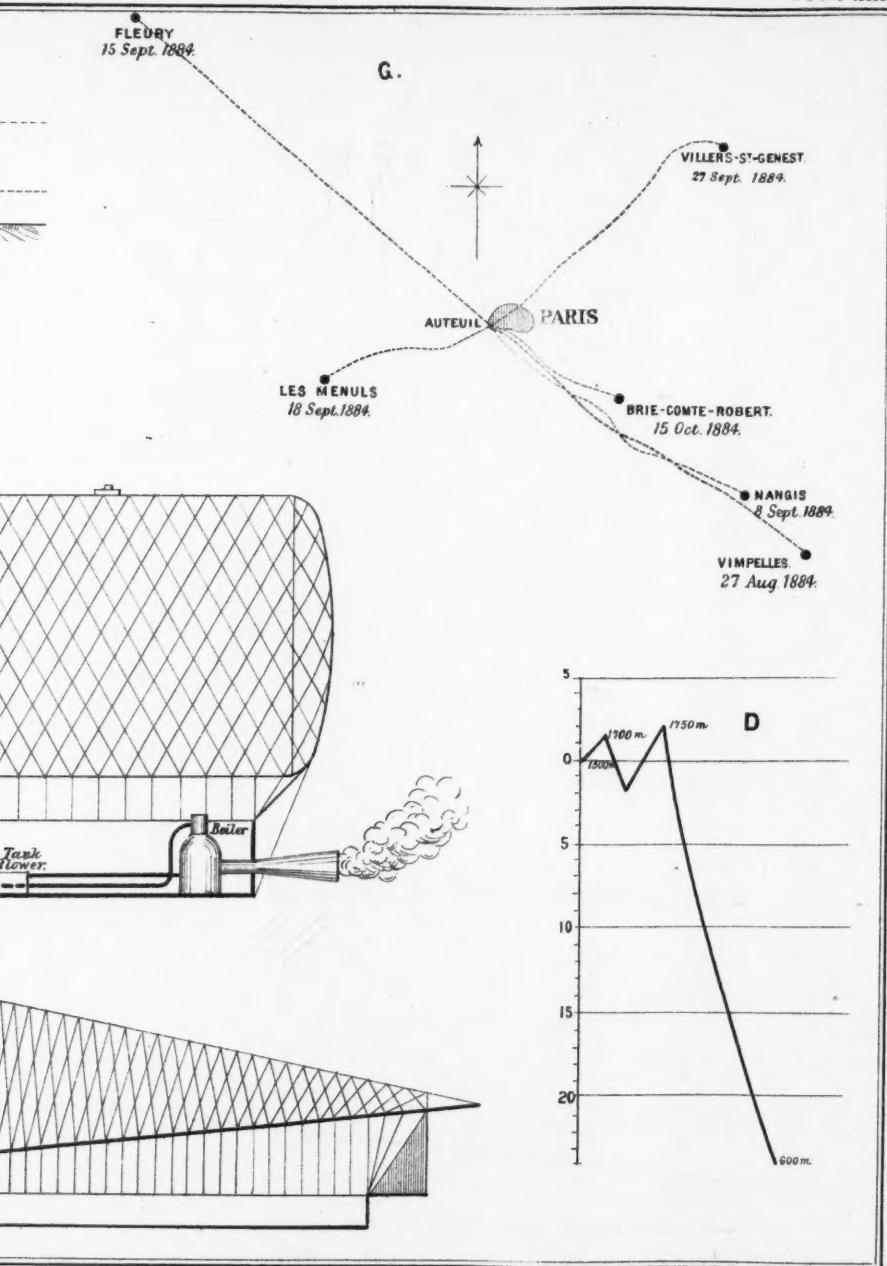


Plate XIII.





heated by gas made in the car by forcing a current of air through a body of half-refined petroleum. The propelling wheel had flat blades, and was placed at the *baw* of the machine, where it rarefied the air in turning, and thus drew the aérostat after it by suction. This beautiful scientific idea was suggested by Auguste Debayoux, mechanician, of Paris, and I believe that it contains a possible germ of the future navigation of the air. It produced at the first trial a speed of 6 miles to the hour, as I noted it, in driving the steamer for distances of 100 yards, near the ground, against a breeze of about $2\frac{1}{2}$ miles to the hour. I was struck by the fact that in driving against this light breeze there was no sense of wind upon the face, as in steaming with a head wind at sea. The movement of air seemed still from the stern to the bow, as if the machine created its own fair wind as it went along, and I accounted for this upon the theory that the revolving wheel, having a speed of 400 turns to the minute, produced a rarefaction higher than that distant one which was then attracting the air from our vicinity and so causing the wind. It seemed, then, probable that perfecting the mechanical details might give a rate of 10 miles to the hour in calm air, but it was clear, as it had been with the earlier experiments, that a very large and very costly machine would be needed to obtain results of practical value. The trials were, therefore, discontinued in June, 1883, their chief result having been to establish the possibility of driving a large balloon fairly against the wind by steam-power, even at a low rate of speed. In October, 1883, the MM. Gaston and Albert Tissandier applied an electric battery to driving a large aérostat, forming a most beautiful combination of scientific research with practical knowledge. They retained, however, what seemed to me the error of placing the screw upon the car under the centre of the aérostat, and their experiments did not result in any notable increase of speed. Upon the 9th August, 1884, MM. Renard and Krebs, of the French Army, ascended from the Military Balloon School at Meudon, near Paris, with a machine (sketched in Fig. F before you) embodying all that was valuable in the previous essays. The aérostat had pointed ends like Giffard's and Dupuy de Lôme's, it was driven by an electric engine, and had a screw-wheel with blades almost flat placed at the bow of the machine, where it seemed to act by rarefaction as well as in some degree by direct propulsion, like a screw at the bow of a steam-ship. There was not—so far as I have been able to learn—any novel principle in this instance, but simply a utilization of known principles to the highest degree, with the possible exception that the projectors still held in great part to the idea that their machine must force its way against the resistance of the air, and would thus, as I think, quickly reach the limit in resisting strength of the necessarily-fragile material composing the aérostat. Whereas, upon the principle suggested by M. Debayoux, the pressure of the air being made the means of progress, I see no apparent reason why the speed attained should not reach a considerable rate by the use of a very large aérostat and consequent increase in power available. With the perfected and costly apparatus of MM. Renard and Krebs a speed of about

13 miles to the hour was attained in calm air, upon the third trial, the machine obeying its helm and returning to its point of departure. But the weakness of the system appeared in the second experiment, when the rising of what seemed only a moderate breeze carried the machine 2 miles to leeward, whence it had to be towed back across the country by a squad of infantry.

With full credit given to the skill and patience which have produced these latest results, I cannot yet see any probability of their practical use for attack in war. The degree of success thus far attained has been possible at all only by keeping the aërostat inflated in a specially constructed building, and seizing the occurrence of a nearly perfect calm. Wind must not arise during the trial, nor the machine touch ground except by aid of careful hands. Its endurance is at most but for an hour or two, and the least derangement of its delicate machinery would be likely to deliver it to the enemy. Its bulk is of necessity great (thus far a mean capacity of about 2,000 cubic yards), and the difficulty of inflating it in the field, alone, makes its use almost out of the question. The result to be gained from the advent of a new motive force at a weight of, say, not above 20 lbs. to the horse-power would be of the greatest interest, but pending such a discovery I venture the prediction that we shall see little success with any "directed" balloon in actual war. Sir Frederick Bramwell, F.R.S., in his President's address to the Institution of Civil Engineers, 13th January, 1885, has inclined to a more hopeful view; but I yet venture to believe that his impression of present achievement, if not his hopes, would be modified by practical acquaintance with any "directed" aërostat thus far devised. And even if control of the movement of these machines be attained, their great size will make them an easy mark for each other's riflemen, and their fate would be almost certain. When A can manœuvre with his aërostat, B can do the same. Inventive talent would soon provide a rifle-ball capable of exploding or igniting the gas in a balloon, and the two machines, upon coming within range, would simply destroy each other like soap-bubbles colliding.

But at the present time every practical advantage seems to lie in using the wind rather than seeking to oppose it—in working with a favouring breeze at long range rather than in waiting for a calm at close quarters. The Austrians attempted this in 1849, and the idea has since entered into various schemes for aerial torpedoes. All of these seem to have failed through want of some means of keeping themselves aloft for the required time, without rising to an excessive height when first set free, and thus encountering an upper cross-current or a calm, either being fatal to their advance (see Fig. A), and the former involving a chance of their return upon their senders (see Fig. B). A balloon, as is well known, upon leaving the earth rises at once to its point of equilibrium, and then almost instantly tends to fall. Its normal course is a sharp ascent to its limit of buoyancy, followed by a steady decline upon a path of greater or lesser angle to the earth, according to the velocity of the wind. The aéronaut corrects this latter tendency by a gradual discharge of ballast to com-

pensate for the gradual loss of ascending power from the escape or condensation of the gas. But the presence of an aéronaut in an aërial-battery system would mean quadrupling the size of each machine, with even more than a proportional increase in difficulty of use in the field, great enlarging of the mark offered to the enemy, and the probable sacrifice of a life for each aérostat employed, conditions which have easily sufficed, hitherto, to prevent the use of the ordinary large balloon for offensive purposes, while for small ones there has hitherto been the radical difficulty of their rising to an excessive height at starting, as already pointed out. Now, I have observed that an aérostat can neither rise nor fall without perceptible change in its volume. Gas must expand before the balloon can rise; gas must contract before the balloon can fall. When the gas expands, the aérostat changes its form along the line of least resistance, and I find this to mean an increase of its horizontal diameter. When the horizontal diameter increases, the vertical must, if the aérostat be spherical, diminish to the same degree, less the elasticity of the material of the envelope. When gas contracts, the contrary effect arises. In other words, the balloon shortens from top to bottom as it goes up, lengthens from top to bottom as it comes down. The extent to which the effect of this principle is measurable was first shown in an experimental voyage which I undertook, by the aid of M. Albert Tissandier, from Auteuil, in Paris, 27th August, 1884. We then found that in rising a distance of 1,800 metres the vertical diameter of the aérostat (which was of 600 metres capacity) decreased by no less than 33 centimetres; that is to say, roughly speaking, at a height of 1 mile the balloon was 1 foot shorter than when it left the earth, and in coming down the reverse took place, until, at the earth's surface, the balloon had regained the vertical diameter with which it started. This shortening of the aérostat took place notwithstanding a weight of ballast, car, and passengers exceeding 900 lbs., the constant tendency of which would seem to be towards elongating the balloon. Subsequent experiments seemed to show that the same law governs smaller aérostats in proportion to their size, and its effect is generally so immediate as to indicate any change of level a trifle sooner by the apparent lengthening or shortening of a suspended cord from the crown of the aérostat than from the motion of the needle of the barometer (Fig. D).

This principle once known, its employment is almost self-apparent. Substitute liquid for solid ballast, place this liquid in a tank having a valve at the bottom, inside, to which is attached the cord coming down from the crown of the aérostat; adjust the tension of this cord until it barely fails to open the valve against the weight of the liquid which normally keeps it closed, provide for taking up the slack of the cord so long as the aérostat is rising, and then weight the machine to rise to the height at which it is to travel, that is to say, to the level of the favouring wind. Upon reaching its equilibrium at that height it will tend to fall. This tendency, as we have said, involves the lengthening of the aérostat, this lengthening puts strain upon the cord, the cord opens the valve, ballast escapes, and the tendency to

fall is arrested almost as soon as it is begun. A rising tendency instantly follows, the aërostat shortens, the cord is relaxed, the valve closes, and at cost of a few ounces of water, position is maintained. The best illustration of this simple device in actual working was shown by the performance of machine No. 112a (the numbers indicate approximate capacity in cubic metres), from Auteuil, 17th October, 1884. It was set free with 60 lbs. of water-ballast, when the air at the surface of the earth was nearly calm, but with a north current at a height of about 300 yards, shown by a pilot balloon. Only 6½ lbs. of ascending power were allowed, but this sufficed to raise the machine to the level of the north current as intended. It then fell a few yards, righted itself by a visible discharge of water-ballast, and set off southward with the wind at a high speed. Before leaving our view it traversed a light mist without any fall which powerful glasses could detect, and it ultimately fell at 63 miles from its point of departure, in precisely the direction which it took at starting, and 2½ hours from the time when it was set free. Only ½ lb. of water remained in the tank, as noted by the finder, in accordance with a request attached to the machine.

To have kept this aërostat aloft for an equal time without the automatic discharge of ballast would have involved giving it the whole, or nearly the whole, of the 60 lbs. in the form of excess in buoyancy at starting. It would then have shot up to a height of 2 miles or more, where a different wind or a calm would have been nearly certain, making its subsequent direction a matter of mere conjecture.

This I believe to have been the invariable fate of all attempts at aerial torpedoes up to the present time, and it is this radical difficulty which we seem now to have overcome (see Fig. C). Nothing is perfect at its birth, and it would be folly to pretend that we have here an exception. But there is here a principle which seems novel in its discovery and application, and I cannot but believe that its careful study will finally enable us to send these terrible missiles with very frequent success, since we are enabled to choose for them any level at which the wind may serve. A similar mechanism may be applied to the discharge of gas if we desire; but I have not found especial need of this. To keep up, rather than down, is the chief consideration.

The question now arises, how is such a system to be practically applied? I foresee a column composed of squadrons generally similar to light artillery, perhaps better horsed and escorted, and with only here and there a gun. The caissons contain strong reservoirs, into which hydrogen has been compressed to the greatest degree practicable by field apparatus, or the supply may be derived from larger sources set up at headquarters, and sending forward portable reservoirs which can be thrown aside when emptied. Gas-making systems, already in use by several nations for military ballooning, show what is easily possible in this direction. It was brought out by a Paper read before you, 30th January of the present year, by Major G. Mackinlay, R.A.¹

¹ See Journal, vol. xxix, page 93 *et seq.*

(General Sir Henry Lefroy being in the Chair), that 8-foot steel tubes charged with hydrogen for balloon service, at a pressure of 150 atmospheres, had held their contents without loss for months, and were so light as to float in water. At this rate eight of these 8-foot tubes would supply the hydrogen required for the inflation of a torpedo-balloon of the size to be usually employed. And I should say that the capacity of 25 to 30 such tubes could usefully be given to one such reservoir-caisson as I have mentioned. Other caissons or supply-wagons contain aérostats of varying size, closely packed, and of material strong enough to sustain their weights without netting, which I find quite practicable. A quantity of small pilot balloons is provided, bearing marks to assist the trained eye in judging the speed and depth of wind currents from them. And there is provision, of course, of the "regulating apparatus" of which I have spoken. With the minor details duly prepared, the aerial-battery service is then ready to take the field, in close connection with the established systems of military ballooning.

The enemy is advancing in force, and his main body is telephoned from the observers aloft to bear north-east, at a distance of 25 miles, and to cover about 3 square miles of ground. His formation may be compact or much extended. It will matter little, as the nature of the attack now in question does not require nice accuracy of aim. The wind may be toward the enemy, with a depth of half-a-mile in which our missiles can travel, and a counter-current above which will bring to us his reply (see Fig. B). Or there may be a calm at the surface, and a wind to favour our attack a half or quarter-mile above (see Fig. C). The variations are many, as my own experience has shown, but it may, I think, be laid down as a general law that there is very rarely a day when a wind-current to favour one army or the other for an hour or two cannot be found at some given level within practical use by such a system as we are now considering (see map of six voyages, Fig. G.). Quick manœuvring for the weather-gage will often come into play, and the service will be planned with a view to that end. And it is obvious that our line may be of great length, with its firing-stations so disposed as to include the largest practicable arc with reference to the enemy, and then the trained eyes in the car aloft at headquarters may order the fire from whatever station they see to be in best position, noting, in the daytime, the effect of the missiles, and changing the range at their discretion. Supposing ourselves to be at station D, 5 miles east of headquarters, the field-telegraph clicks off the message "Prepare;" inflating-tubes are got ready, ballast-tanks filled, and a dozen or more of aérostats brought forward. They will be from 10 to 20 feet in diameter, and quite manageable upon the ground in ordinary weather. The hydrogen will be delivered from under pressure with great rapidity, and the last moment may be awaited for filling them. Around the neck of each is a collar, so fixed as to obtain the whole strength of the envelope at that point, and to this is suspended the ballast-tank, arranged as I have described, and the explosive charge.

As to this last I am hardly entitled to speak, and I venture to do so at all, only in the hope of eliciting important facts from the great authority whom I see before me. It is obvious that the system we are discussing will admit the use of the highest class of explosives, and very possibly of some which have not yet found employment in the field, from the want of practicable means of discharging, without exploding, them. Sir Frederick Abel will, perhaps, supply these wars of a short future with something even more destructive than gun-cotton, but for the present purpose the lightness and convenience of handling of this latter make it specially adapted. And for practical effect, both moral and physical, upon the enemy's forces, it would seem that we might well trust to a series of explosions of hundred-pound shells of gun-cotton, distributed over his position—though this is the question now before you.

Next comes the firing order, "Twelve, five hundred, forty-eight, fours," that is to say, "Send twelve batteries, at a height of 500 yards, to deliver their fire at one-minute intervals from forty-eight upward, with four charges to each battery." Inflation completed, the parts of the battery are quickly put together, the whole twelve, in case of a well-drilled squad, being let go nearly at one time. The charges have no firing mechanism, but are to be exploded by the shock of their fall. Each is held in place by a timed fuse cut to burn forty-eight minutes and upwards, as ordered from the calculations of the observers at headquarters, the four charges upon each battery dividing the minute interval between them. Ballast enough will have been allowed to keep each aérostat up to its level until its charge has fallen, and its loss then is of no importance. The cost of each, with its four charges, will have been rather less than that of one shot from an 80-ton gun, and there is a fair chance that the machine itself may return into our hands upon the upper current to which it will rise when its weights have fallen. These are points of little value. The question is as to the effect which these forty-eight charges, or double or treble that number if we choose, may be expected to produce in falling. It is, I believe, an abandoned notion that the higher, and quickly-burning, explosives, such as gun-cotton and the various compounds based upon nitric acid, require close confinement for the development of their power. But that the conditions as to confinement may affect the *direction* in which that power is exerted seems to me to be beyond question. Now it has appeared from such very imperfect experiments as have come under my observation that the momentum of a falling charge acts as a confining power against the upward effect of the explosion produced by concussion, and thus tends to heighten its effect along the line of least resistance, the horizontal. I have by no means such data as would warrant my stating this as a fact, but I confess that I am unable upon any other theory to account for the effects of a series of experiments with nitro-glycerine shells, carried out upon the Potomac River, near Washington, in March of this year. I have not the exact official report at hand, but I have seen several informal reports upon the matter, and have been favoured with a confirmatory statement by an eye-witness,

which seem altogether to leave little doubt upon the points with which we are now chiefly concerned. It appears that charges of gelatine, of from 9 to $11\frac{1}{2}$ lbs. each, were thrown from a mortar, at a range of about 1,000 yards, and alighted upon the flat face of an extensive ledge of rather friable rock, where they exploded by concussion. And the result of each shot is stated to have been an excavation of the rock to a central depth of 6 feet and a diameter of about 25, with great flight of splinters in every direction.

Subject to all due correction, I cannot avoid the impression that if such, or nearly such, results were produced by explosions of 9-lb. charges of a form of nitro-glycerine, the effect of gun-cotton charges of six to ten times this weight, and delivered at a quite equal, or greater, velocity, must be greater in proportion. If we make a large allowance for errors of direction, and consider that one-third of the missiles we have just seen prepared will take effect upon the enemy, we shall have a total of sixteen heavy explosions, in rapid succession, within his lines, and possibly without warning. He may, if the attack be made by day, foresee the missiles, and lessen the material effect by rapidly extending his formation. But the attack may almost equally well be made by night, and it would not infrequently happen that varying currents at different levels would give us means of concentrating the fire of several of our stations upon the enemy's position.

In considering the physical effect of such attack, I assume that when you have gained a position enabling you to shell the camp of the enemy's main body, you have beaten that enemy for the time being. And I cannot better express the aim of the aerial-torpedo system, as applied against armies, than in saying that it seeks to enable you to do in this way at 30 or 40 miles distance, that which you now effect at 3 or 4. It is upon this point, first of all, that your judgment is invited. Would an attack so delivered be likely to add very greatly to the destructive effects of war? Here arises, of course, a vital objection. Would the army attacked be as defenceless as what I have been saying seems to imply? Would not rifles, machine-guns, or light artillery bring down these missiles as soon as they arrived within range, and before they came above the enemy's position? The chances against this defence are almost hopeless. Experiments carried out in France have shown that an ordinary balloon is safe from riflemen at a height of 600 yards, and for these miniature aérostats which we are discussing, half that height would commonly be sufficient, even if, for using a specially favourable current, we wished to send them so low. The difficulty would lie in their unknown size, distance, and rate of speed, making it impossible for any range to be found for them. A weapon like the Hotchkiss revolving cannon, delivering, as I have seen it do, 6-lb. shells at the rate of sixty to the minute, with a range of 4 miles upon the earth, might, now and then, bring down one of the advancing torpedoes from a relatively low level, but it must not here be forgotten that the smoke from any of these quick-firing arms makes accuracy of aim almost impossible after the first two or three discharges. The vertical height of the

aërostats from the earth would, however, very rarely be less than 1,000 yards, and I venture to say, with the hope of challenging correction, that the advance of a small balloon at such a height is most unlikely to be stopped from the earth's surface by any weapon now employed.

Picket-balloons stationed in front of the enemy's lines, and containing riflemen, might in some degree protect him in the daytime, but a wind of moderate strength would keep them near the ground if they were captive, and carry them to the rear when it favoured the advance of the enemy, if they were free. A calm belt above the current in use by the enemy would offer a chance of picking off his missiles as they advanced, from a free balloon hovering in the calm region, a condition which I noted above Versailles, in October, 1884, and which formed the basis of Fig. A, before you. But the chance occurrence of such a state of things would obviously be a slender reliance for the safety of an army.

With this assumption in mind, we now come to what seems to be an all-important consideration—what effect upon the *morale* of an army may be expected? I shall, in this room, be quickly corrected if I am wrong in saying that nothing so tries the courage of the bravest soldier as a suspicion of the presence of mines. What, then, will be the effect, even upon well-seasoned troops, of a feeling that any chance shift of wind—taking place, it may be, upon an upper level without their knowledge—is likely to bring down upon them an avalanche of mines of this terrific kind? What will be the effect upon the formation of an army when a series of such explosions—often from invisible sources—has begun? Is it in the nature of man to stand against an attack which he has no *hope* of resisting? Men will face death—rush upon it—for duty or glory, but how will it be when there is nothing to rush upon, and glory has disappeared—when it comes to an end of personal achievement, almost an end of military distinction; merely a few groups of engineers, applying to war the methods they have learned to use against other barriers which they find in the path of civilization?

I have dwelt upon the case of opposing armies as being the primary feature of war now existing. You will note, in passing, that I do not claim your assent to the working of the mechanical details which I have shown. The question is simply that of the *effect* to be produced, granting that these devices do their work as intended. Let us look at one or two conditions of warfare which might be created by the advent of a system of air-torpedoes. We have assumed that its effective range may sometimes exceed 100 miles for a few hours at a time. Let us suppose the inevitable war to be rekindled for the possession of the Franco-German provinces; or that Prince Bismarck has disagreed with the French authorities in some distant Colony, and put in execution his threat to "open the gates of Metz and march forward." Will then a French commander, from along the summits of the Vosges, be able to enforce the evacuation of every German town for a distance of 50 or 60 miles from the frontier, explaining that such a course is forced upon him in the interests of humanity, as

it is not certain which particular town he will first be able to destroy ? And if we go farther afield, may the establishment of certain known quantities of hydrogen and gun-cotton along the north-western frontier of India sensibly aid the efforts of diplomacy to restrain migratory tendencies in that direction ? And it is worth remarking that a chain of fortified posts—small and inexpensive though they might be—equipped for warfare upon such a plan, would exercise a singular—and by a judicious management a permanent—influence upon the superstitious minds of tribes around them, whose aid would have to be sought by any intending invader.

Again, right to destroy an enemy's naval stations would hardly be denied to be among the usages of war, provided that non-combatants have notice to withdraw. What answer should be made, then, to a French or even a Belgian commander, who should announce his intention of attacking Sheerness and Chatham upon the first easterly wind, and warn all non-combatants to withdraw to at least 10 miles inland ? He would obviously have planted his own firing-stations far enough inland to be out of reach of bombardment from the sea, and very large armies would be beside him. If under these circumstances it were thought best to remonstrate with him, he would hardly fail to point out that, while he regretted the necessity of his intended action, he saw ships being built or sheltered at these stations which menaced the safety of his own fleets at Flushing or Boulogne. He might, of course, with a northerly wind, be paid in his own coin ; but when we consider the chances of the south wind arising first, and the comparative magnitude of the interests threatened in the two cases, does it appear that the merely forbidding a tunnel under the Channel has fully dealt with the possible situation ? I need not dwell upon the reluctance with which I allude to a possibility so appalling, but we are dealing, gentlemen, with the methods of the sternest game ever invented, or practised among men, and it is not to an audience of soldiers that I look for any shrinking from whatever consequence the admitted laws of that game may now be found to imply !

Time and your patience would fail me in attempting to follow the possible use of these weapons into nearly every branch of military and naval operations. But there is one possibility which comes to my mind so vividly that it will not be denied. The most obvious defect in the whole system appears to be the difficulty of transportation, either of quantities of stored hydrogen, or the means for producing it ; and there is one feature of the scheme from which this element of difficulty disappears. The surprising growth of the torpedo system in recent years directly suggests the air-torpedo cruizer, a steamer, let us say, of 1,000 tons, without great guns or armour, attaining a speed of 20 knots, and carrying great tanks of hydrogen under pressure, filled before leaving port, and fed, if need be, by auxiliary apparatus on board. In her lockers are a hundred aérostats of varying size, and her magazine is filled with the parcels of highly-compressed explosive of which we have spoken. Her especial mission is against the enemy's naval stations, coaling ports, and any other element of his naval power which she can reach, and her

method simply to place herself in a windward position and launch, at the point of attack, a score or more of her batteries. She will, of course, have nothing to fear from "14-knot leviathans," and though lightly-armed cruisers may have speed equal to her own, she will, sooner or later, elude them long enough to deliver one attack which will amply compensate for her own subsequent destruction, after the manner of torpedo-boats in general. Her cost will be much less than that of any ironclad, and there is no apparent reason against her being built, or bought, in scores by Powers having no naval importance at the present time.

In brief, I propose to you a warfare by gun-cotton and hydrogen; to make the loss of an army a result of its meeting an opposing wind; to destroy the security of fortified positions; and finally to show, upon the simplest principles of self-preservation, that nations *must* keep peace and great armies be disbanded! If it be urged that the plan is horrible, I admit that it is precisely as horrible as the existence of war between civilized Powers; that it takes unfair advantage, I reply that it works in the open sky, while, if to hold the weather-gage of an enemy be an unfair advantage, how many naval statutes must come down!

I have been asked by a very high authority, whether the use of air-torpedoes may not—like that of explosive bullets—be forbidden by league of the principal nations. And I answer, precisely as the use of gunpowder might have been forbidden by a league of the men-in-armour. There is no analogy, here, with the explosive bullet, a wanton and useless addition to the horrors of war. The aim in this case is to shorten, and thus alleviate, war, and a league against the plan for doing this will last no longer than the first sight of a victorious army marching upon a capital. I do not believe that London, Paris, Berlin, or Vienna will submit to preventible invasion because of a protocol signed by the previous Government, nor from any ethical objection to destroying the advancing enemy by whatever means science and the forces of nature may have combined to supply.

No, gentlemen! In asking your judgment upon the probable importance of the effects which I have indicated, I assume that war *is* the art of inflicting the greatest loss upon the enemy, within the shortest time. And if we can suddenly expand that loss to the verge of annihilation, we shall, I think, be in a fair way to *improve* war from off the face of the earth, when every other means to make an end of it has failed!

The CHAIRMAN: It is now my pleasure to invite observations, and, in doing so, I would remind gentlemen that although Mr. Gower has put before us some very interesting information with regard to balloon navigation, still that is not the prominent subject of the paper. What we wish to discuss is the question whether, supposing Mr. Gower's plan for regulating the height of a balloon, so that it will proceed in the direction in which it is originally launched, to succeed—what will be the value, from a military point of view, of the system of aerial torpedoes which he proposes?

Sir E. J. REED, M.P.: You have, Sir, rather discouraged the only remarks I intended to offer, viz., those upon the first part of the paper, because I radically differ from Mr. Gower as to the propositions he has laid down with regard to the

propulsion of balloons. I think there were some very serious oversights in the exposition which he gave of the two modes of propulsion which he referred to, but you have ruled, Sir, that we cannot enter into that part of the subject. With regard to the main question, I can only say it seems to me, from my experience in connection with naval warfare, that there is a very immense amount of experimental ground to be traversed before the question, which alone you allow us to discuss, becomes an urgent one.

Dr. POLE: I have had no experience in regard to the principal subject of the paper, and although I have directed attention to the propulsion of balloons, as Sir Edward Reed has said, that is clearly excluded. I will, therefore, confine myself to one point. Mr. Gower mentioned a comparison made by Sir Frederick Bramwell, as President of the Institution of Civil Engineers (an Institute of which I have the honour of being honorary secretary), between the activity of the French and ourselves with regard to the propulsion of balloons. I think Mr. Gower has rather misunderstood Sir Frederick Bramwell in supposing that when he said the French would have had a balloon looking down into Khartoum, he had any idea of any warlike operation from the balloon. All he meant was that they would have had such a balloon as a means of observation; it certainly would have been a great improvement upon any kind of captive balloon. There is no doubt the French have already arrived at such a degree of practical skill in the propulsion of balloons as to make a guided balloon a really practicable thing. However much reluctance there may be in this country to believe it (and it is astonishing how obstinately the English disbelieve in the possibility of propelling balloons), it has been proved beyond all doubt that balloons can be propelled with considerable speed, and as means of observation these must certainly have an advantage over the old form.

Mr. BREARY: Will you allow me to put one question? All I wish to know is how these balloons are kept in shape? We see them in very ship-shape form now, but they must be kept out of shape if any degree of propulsion is obtained.

Major-General Sir ANDREW CLARKE, K.C.M.G.: I did not intend to take any part in this discussion. It is a question which I think we are hardly prepared to consider, and it has come upon us in its present form in this country rather as a surprise. It is entirely a new application of the subject, and we English people are always, as a rule, very careful in committing ourselves to a matter of this kind, which takes us into an unknown and uncertain field. I trust, therefore, that the lecturer, who has been good enough to bring this before the British public, will not think, because we are comparatively silent upon this question, that it is not a matter which has interested us, and I may give him the hope that although at this present moment there does not seem to me to be any immediate prospect of our having controllable balloons established, still in the year 1882 I was most anxious that our army going to operate in Egypt should be accompanied by captive balloons for the purposes of observation. My proposal—I had the balloon ready—was not accepted, though it had the support of His Royal Highness the Commander-in-Chief and the Secretary of State, so the balloons were not sent. I believe myself—I am now quite convinced from the experience we have had—that had these captive balloons been sent then over to Egypt we should have had a very considerably less loss of life than we unfortunately had, and in all probability should have done the work more thoroughly than it was done. I hold in my hand a letter that I received yesterday from Major Templar, who is now at Tambouk along the line from Suakim to Berber, in which he gives me some interesting facts with regard to the observation and the reconnaissance that he has been able to do along that line. He speaks of the assistance that it has been to the Army, and of the moral effect produced upon the Arabs—who believed it to be Mahomet's coffin suspended mid earth and heaven—by the appearance of the balloon, and who in truth, to this superstition it is pretty well attributed, have not again waited in force on subsequent advances. I have a still more interesting letter from Sir Charles Warren, who is at the other extreme point in South Africa, where he has been practising with his balloon, and we find, for the first time in the history of warfare, the General Officer commanding an expedition in the field himself reconnoitring from a balloon, because Sir Charles Warren has made several ascents. Indeed, considering that during the short space of two years captive balloons have been found of con-

siderable value to our armies operating in the field, I do not at all despair of our being able to learn how to control a balloon for the purposes of observation. I do not desire to commit myself in any shape to advocating that these controllable balloons should be used for the purpose of aggressive warfare; I shall be content if we can get a balloon or an aërostat which, to a certain extent, will give us the means of observation in the field. With that I shall be perfectly satisfied, and at the present moment my efforts in our School at Chatham are in that direction. We hope to be able to get within certain limits a balloon which will resist certain climatic influences and conditions, and which will, with comparative certainty, enable the General Officer to take observations, and with that, as far as I am concerned, I think we ought to be satisfied. As to the question of explosives, I am quite prepared to have certain experiments made in that direction, which I am arranging with Mr. Gower, but I myself am not very sanguine or, indeed, desirous of their success.

Sir E. J. REED: I am afraid I spoke rather too briefly about the balloon. What I wished to point out was this. Mr. Gower seems to treat the whole question of balloon propulsion as if balloons of a ship-like shape were not benefited by the following current, whereas, he thinks, a blunt balloon would be so benefited. I think that is not at all the case. Any body moving in a perfect fluid would actually move ahead without resistance, because the work done upon the after part of the balloon by the following current is equal to that done by the fore part. The ship-shaped balloon profits by the following current just as much as the blunt balloon does. At any rate, I should like to make it quite clear, as far as my humble knowledge goes, that the theory which Mr. Gower supposes of getting a balloon to be advanced in the best manner by making a sort of proximate vacuum in front of it is quite in contravention of anything that I have ever seen, and certainly is in contradiction of the now accepted doctrine of the motions of bodies in fluids, which recognizes in the fullest manner the propulsive forward effect of the closing in of the following current on the after part of the balloon.

The CHAIRMAN: Before calling upon Mr. Gower to reply to the few observations which have been made with regard to the subject matter of his paper, I should like to be allowed to say, although it is hardly within the province of the paper, how glad I am to hear from the Inspector-General of Fortifications that our captive balloons appear so far to have been attended with a considerable measure of success. Personally I have been very much interested in their development. In the past thirty years I have been engaged from time to time in connection with the development of balloons for military purposes, the elaboration of methods for the generation of gas in the field, and the construction and management of captive balloons, and it has been particularly pleasing to me, intimately connected as I have long been with the Royal Engineer Establishment at Chatham, to observe how rapid has been the progress towards comparative perfection in this direction during the last few years, thanks to the energy and talent of a few young Officers who have devoted their time to this subject, my friend Major Templar being among the foremost. The method now used for transporting the requisite hydrogen gas in the field really leaves little to be desired. No doubt we shall succeed in making even lighter vessels, and no doubt the material of the balloon itself, greatly improved as it has been already, will be still further improved. We have still to learn whether our balloon material is as permanent in different climates as it should be, but with the exception of these few points I think we may congratulate ourselves on having already established, although on a small scale, a really efficient balloon equipment for purposes of observation. With regard to the immediate topic of Mr. Gower's paper, I need hardly say that it has interested me greatly. His method of controlling and maintaining the height of his balloon appears to me certainly ingenious, and to present at any rate some germ of promise. How it is likely to work out successfully, so far as to overcome the practical difficulties which I can foresee, but which I would hardly venture to discuss now, remains to be seen. No doubt Mr. Gower will continue to devote his talents and his great perseverance to the completion of the mechanical arrangements by which he has so far succeeded in demonstrating the theoretical soundness of his views. As regards the effects of explosives thrown from or dropped from balloons, I would venture to express the

opinion that unless balloon warfare could be carried out upon a very extensive scale it would be of comparatively little value. I can conceive it possible that a series of balloons may convey explosive charges under favourable conditions towards dock-yards, or towns, or military works, and that charges, allowed to fall from such balloons from a somewhat considerable height, may, if used in very large numbers, produce an amount of havoc which may perhaps exceed that attainable by bombardment, from a limited number of ships, or by a limited number of guns. But I confess I think the idea of the use of explosives in the manner proposed against an army in the field is not one which I should look upon as affording great promise of important results. I have had much personal experience with regard to the area of destructive effect of the modern explosives which are used in land or submarine mines, and can vouch for its being much more limited than many are inclined to believe. The recent experience of those heroes, Police-sergeants Cole and Cox, showed that comparatively large charges exploding within a very few feet of human beings certainly did not destroy them, and did not even permanently affect their health; and I myself may go so far as to say, from personal experience, that a man may be within 30 yards of the explosion of a ton of gun-cotton and not be very much the worse for it after a few weeks. Under those circumstances I venture to think unless charges carried by balloons can be used upon a very extensive scale, indeed a scale even much more extensive than Mr. Gower contemplates, they are not likely to have that effect of annihilation, as regards warfare, which our friend has emphatically predicted. With these few observations I will call upon Mr. Gower to favour us with any reply he has to make.

MR. GOWER: Mr. Chairman and gentlemen, I have been exceedingly interested in the valid and serious objections, as I recognize them to be, which have been offered, but which still, to my mind, seem to admit of the possibility of explanation. Sir Edward Reed believes that I have overlooked the difference in the modes of propulsion. I have not overlooked that difference, but in connection with my study of the work of Messieurs Renard and Krebs, who have gone very deeply into the question, and with various other observations as to what has been done in Germany and in Russia, and is just now being organized on an unprecedented scale by the Government in America, it has seemed to me that there was so vast a disproportion between the results obtained by any method of pushing a balloon through the air, and the force actually expended, that there must be something radically wrong in the idea. As to the difference in form between a lean balloon and a thick one, the analogy in my mind was that of the cartridge which you employed to transmit a message through a pneumatic tube, which you not only make as thick as convenient, but also furnish with a rim round the rear end, so that the air will act as much as possible over all its perpendicular surface. We thought, as a matter of fact, that it might not be a bad idea to surround this balloon with a rim at the back in order that the air coming from behind might have as much hold on the perpendicular part of the balloon as possible. If the air coming along the surface of a balloon exerts as much force upon a long, fine line as it does upon a perpendicular flat surface, then I should, if I were a designer of yachts, be inclined to commit suicide without further delay. Dr. Pole gives us indication of great hope, which I am much pleased to see, in the future of directed balloons, and I may perhaps confess to having usefully spent as much money and time in that direction as anyone I know of since Mr. Giffard's time. I cordially hope that they will be successful, but I believe that they are and always will be so absolutely defenceless against each other, so vulnerable at the extremest rifle range, or even to a revolver or anything that can fire a small explosive bullet, that I cannot see how two such balloons could possibly live within a mile of each other. That is really my greatest objection to the directed balloon in war. I shall only be too happy to join as I can in aiding propulsion through the air consistently with my own experiments. Mr. Breary has asked how these directed balloons are kept in shape. Balloons propelled by a screw, like that of Renard and Krebs, are not kept in shape as far as I know, but show a remarkable deflection when pushed against the wind, while the aërostat used by M. Debayoux and myself in the previous year (1883) forms a hollow in its front just behind the revolving wheel when under way. But other than that there is no deflection in the shape of that aërostat whatever; it does not change its

form for this reason, that it does not force itself against the wind; the fan-wheel simply tends to clear away the air from its front; the air rushing after it brings the balloon along, and there is no cause for the balloon to deflect or change its form. Theoretically it is true that you have driven away the air from your line of progress in all directions, and therefore caused its return from all directions as well; but whereas the air coming from in front encounters the revolving wheel and is again thrown off, the air coming from the rear impinges along the length of the aérostat and pushes it ahead, creating in some degree the effect of going with the wind. The idea is to create an artificial fair wind. I have driven this steamer at the speed of $8\frac{1}{2}$ miles to the hour, and have found that there were no signs of wind on the face, and you could fancy that you were in an almost perfect calm. There certainly was no effect of facing the wind. Sir Andrew Clarke has given us remarks that I approach with the greatest diffidence, because I cannot but feel that there is no one so peculiarly qualified (unless it may be some one in the French service) to know what has been done and what is likely to be done in certain lines of ballooning as he is. His remarks have reminded me that we had the honour of a visit in 1882 at the establishment at Ville-Neuve-St. Georges from Major (who was then Captain) Lee, and had the great pleasure of hearing his observations and the prediction he was kind enough to make, and he then told us, as nearly as I remember, substantially what we have heard in more extended form from Sir Andrew Clarke to-day, that it was hoped that a directed balloon would be of value for observation, but that it was not felt on this side the Channel that it had any great immediate value for offensive operations. That agrees, I must say, with my own view at the present time, provided, of course, that each party to a war possesses them. If one side alone be allowed to use them, the results are too obvious to need description. The other party would be simply annihilated, or put to flight, upon the first calm day. I believe that there is interest, as Sir Andrew Clarke has kindly told us, in this country in the manufacture of directed balloons, but as compared with the interest being felt and the money expended in other countries, I feel it simply my duty to inform you that that interest is invisible. So far as I can learn, there is no war balloon now being prepared in this country which might meet the French one in the event of an outbreak of war. The German Government is making a series of experiments of very great importance, and they have reached results practically equal to those of Renard and Krebs. There is one enthusiast in France who seeks to drive a balloon by successive explosions—by successive recoils from the discharge of a cannon, and by that curious means he has succeeded in getting (at infinite danger) a certain amount of propulsion—two or three miles an hour in speed through calm air. It seems to me, as an investigator in these matters, that a directed balloon would have been of the very greatest value in the Soudan, and when Sir Frederick Bramwell (speaking from his almost unequalled position as a scientific observer) said, "I strongly suspect that if our lively neighbours instead of ourselves had been invading the Soudan, they would long before this have had a 'dirigible' balloon looking down into Khartoum," I made the obvious inference that they would have provided that aérostat with one of the admirable weapons supplied by Mr. Gardner or Mr. Nordenfelt (even if they could not reach the weight of those used by Hotchkiss); for I should not have supposed it possible to avoid that opportunity of throwing over ballast to such tremendous advantage. That plan, however, I ought to state, in passing, in a balloon carrying passengers, is open to the serious difficulty that on throwing over a weight of 100 lbs. your balloon rises with such startling rapidity that you are almost sure to be asphyxiated, unless you have your valves well in hand. I am specially pleased to hear from Sir Andrew Clarke—and I know the whole fraternity of investigators in aérostation will rejoice with me—that a General Officer has braved those awful terrors which I assure you are not much more than a voyage in an average tramcar if the service be properly organized, and that he has made a practical ascent for practical purposes. Sir Andrew Clarke does not despair of having a controllable balloon, and in that I agree with him very fully. When you have attained a speed of 13 miles an hour, of course you have already a controllable balloon. Still, it must be a very gentle breeze which does not exceed that speed, in fact you would scarcely at that rate say the wind blew at all; and naturally, if one is exposed to be driven over to the enemy by the first casual

breeze which arises, the danger of the system is almost prohibitive. I ought, perhaps, to say that the particulars of the experiment being undertaken by the American Government which I referred to have only reached us this morning. The balloon is to have a lifting power of 7 tons, and it is undertaken by the Ordnance Department that all questions connected with controlling the movements of a balloon shall be thoroughly thrashed out. I will only add this, that the larger you make the balloon the more mark you will offer to attach by some system, or in the case of an army, by such system as I have ventured to point out. I am also very glad to hear that the effects to be produced by dropping a charge as distinguished from detonating a charge on the surface of the earth, are going to be thrashed out as well; but I am struck by the fact that there seems to be no convenient place in or near existing stations in which one such experiment can be tried. If the effect is to be local, I really do not see what interferes with our carrying out such an experiment at or near Chatham, Aldershot, or some other place. If the effect is to be only local, I suppose a piece of ground 100 yards square would be considerable for such a purpose, but for the moment the difficulty appears to be that you cannot find any place wild enough and remote enough to be sure of escaping a coroner's jury and a charge of manslaughter in producing such explosions. I will scarcely venture to reply to what has been said about the effect of explosions by so great an authority as Sir Frederick Abel, but I may perhaps point out that the scale of operation which I propose has evidently not been grasped in your minds. The expense of these aérostats would in almost every case be less than that of one shot from an 80-ton gun. I should never think of employing so few as 100 for an ordinary attack, and for such an attack as I have ventured to indicate, made from a distance of 100 miles or less, upon a fixed point like a large naval station, I should say the enemy would be wanting in judgment if he started with less than 1,000 aérostats. If he launched these on a steady easterly wind, with their detaching charges cut to different lengths, I think it is in accordance with the most obvious doctrine of chances that he will destroy that naval station, while if he does not do it the first week, he will do it the second. Then, in making such an attack as that, I should by no means suppose that he would commit the error of confining himself to mere explosives. It is not his object to make a noise; it is his object to start a series of practically inextinguishable conflagrations, and I think science in our days is fully equal to providing the mechanism, provided the means thus prepared can be dropped in anything like the positions expected. I am greatly obliged to Sir Frederick Abel for the encouragement he has given, and I can assure him that I shall continue to work out the system, as he has so kindly suggested. One great object which I had to-day was to let it be known to the highest authorities (in the way of military judgment) that such a system exists, and we shall certainly hope to hear in some way of the matured judgment which may be passed by gentlemen who have, as Sir Frederick Abel has indicated, not felt able to go into the details of the matter to-day. I am greatly obliged to you, gentlemen, for the patience with which you have listened to me.

The CHAIRMAN: I am sure I shall do what you desire if I express your hearty thanks to Mr. Gower. He has given us a vast amount of very interesting information, and has set us thinking on a variety of subjects. We thank him very much for his lecture.



Friday, June 12, 1885.

LIEUT.-GENERAL LORD CHELMSFORD, G.C.B., Chairman of the Council, in the Chair.

DISCUSSION ON THE MILITARY PRIZE ESSAY.

SUBJECT.—“Should the European Army in India be continued as at present constituted, or should it be converted, in whole or in part, into a local force?”

The CHAIRMAN : In the unavoidable absence of Lord Napier of Magdala at the Gordon meeting, I must ask you to kindly consent to my taking the chair on this occasion. It must be a great disappointment, but should the discussion be adjourned, Lord Napier hopes to be able to be present. It is presumed that everybody has received a copy of the Journal in which the Military Prize Essay and three other essays honourably mentioned have been printed,¹ and therefore is well aware of the nature of the discussion which is to take place, and papers laying down six suggestions with regard to the points specially proposed for discussion on this occasion have been printed and distributed, viz. :—

1. The requirements of the British Empire with regard to the European Army maintained in India.
2. Does our present military system meet those requirements?
3. The advantages and disadvantages of the system in force during the rule of the East India Company.
4. The probable advantages and disadvantages of localizing the whole European force maintained in India.
5. The probable effect of the changes proposed by the Prize Essayist.
6. Any alternate suggestions.

Colonel Sir LUMLEY GRAHAM : I rise, not because I have very much to say on the subject, but because having been one of the referees I have had the opportunity of reading some very well written essays, full of very suggestive matter, expressing considerable difference of opinion, as was to be expected, but at the same time agreeing in one very remarkable point, namely, that the present system of our Army is inappropriate to the requirements of India, and therefore of the Empire at large. Every one of the sixteen essayists is in agreement that the present military system, with regard to length of service, is not suited to the Army of India, and that a longer service is required. Then, after that came the many points of disagreement. Of course everyone had his own solution of the problem as to how an army was to be provided adequate for our wants in India. They all agree that our Indian Army must be always prepared for war. It does not do to have an army composed of weak regiments, that would take some time in being reinforced to a war strength ; the

¹ See Journal, vol. xxix, page 295 *et seq.*

the Army in India must be kept as nearly as possible at a war strength, and also the soldiers composing it ought to be in full vigour and at the best age in life for military service. There was a great deal of difference of opinion as to the best age for service in India, but I think that, striking the balance of opinion, as expressed in the different essays, the best years of a soldier's service in India are generally between his twenty-fifth and his thirtieth year, that it does not do to take a very young man to India, for he is pretty sure to break down, and that comparatively few men remain fit for service in India after they have been out there some ten years, although there are always a certain number who might be utilized as long as they are fit for any soldiering at all. The question assigned to the essayists was, whether we could keep the Army as at present constituted, or whether it should be turned into an entirely local force, or a partly local force. The great body of the essayists were against a completely local army, but there were one or two exceptions. I think, without exception, they were all against an army partially local. The few who were in favour of localizing any part of the Army were in favour of localizing the whole Army serving in India, but certainly the balance of opinion was greatly against any local army. Then there were various systems, more or less taking, suggested by different essayists. I am not speaking merely of those whose essays were recommended for publication, for many of the other essays, not recommended for publication, contained a very great deal of good matter. They differ very much in details as to the means for providing this non-local force. The essayist to whom we gave the prize recommended a plan which causes the least possible disturbance of the present system, and that appears to me to be one very great recommendation of his plan. The changes which he recommends are of so small a nature that they may seem to some people really to amount to a very little, but, I believe, the very smallness of the change constitutes the great value of his proposal. He proposes simply a slight prolongation of service both for Home service and for Indian service—that the present system of seven years at home and eight years abroad with the colours, should be lengthened to eight years at home and nine years abroad, with a prolongation also of the Reserve service. There are a great many Officers here present with great Indian experience, which I cannot boast of, and therefore in what I have said, I have only endeavoured to break the ice, so as to induce others to speak; I hope that now I have said my few words there will be many to follow me, and to give us the advantage of their opinions.

General Sir F. P. HAINES, G.C.B., G.C.S.I., C.I.E.: As late Commander-in-Chief in India I feel that I ought to have perhaps more to say than I have on this occasion, for I really did not come here intending to speak on a subject which I quite admit is most interesting, but of which, perhaps, I, in the course of perusal of sixteen essays, became somewhat weary. It really was a work of very great labour to peruse all those documents. However, I really have very little to say on the subject beyond the fact that I agree with Sir Lumley Graham's introduction of this debate. The essayists seem to me to condemn completely, as regards the Indian and foreign service generally (many of the writers have treated of the foreign service as well as the Indian), the system of short service as applied to that branch of the Army. There is no question about it, that we must have a plan in which short service is the rule, because a reserve has become part and parcel of our military system, and it is necessary to keep it up; but I maintain, and I always have maintained in my official position, that India should not be called upon to contribute to this reserve in any way whatever. She is entitled to have the service of the very best men that can be given to her, and by having to furnish men for the reserve she is, so to say, defrauded of a great part of the best period of service in a man's career. I cannot help thinking that this system must be condemned shortly. There is a tendency in all the recent measures to lengthen the period of service in India, and I think that, even when the measures which have as yet been taken come into full force, we shall see a great diminution in the expenditure which India has been called upon to bear, and the efficiency of the regiments will be immensely increased. I was well acquainted, in the early part of my service, with the old European regiments of the Company's service, and I can state that they were most admirable regiments. Nothing in the world could be finer than the men that I have seen both in Madras and Bengal, while the Bombay regiments were perfectly

equal to their comrades in the other Presidencies; but I am in no sense an advocate for the restoration of the local system, as applied to the Indian Army. There is one great centre of administration, and that is the War Office in London, and I do not quite see how a local service could advantageously be re-created under that authority alone, and I think, to have an *imperium in imperio* would be simply to reduce the value of the Army government and administration. The Company is no longer in existence, and there is really nothing to induce the introduction of a second element into the recruiting branch of the Army. To recruit for India on special terms would undoubtedly be to create a competition in the recruiting market which would be extremely unwholesome and detrimental to the Army as a whole, and therefore, notwithstanding my great admiration for the Indian Army, which gave us infantry of the first quality, artillery of a quality not to be surpassed, I would still rather depend on the British system alone for the Army of the future in India; as Sir Lumley Graham has said, the remedy seems so extremely simple which shall rectify the existing faults—and I think anyone who has read Captain Browne's essay must see that it is so—that it is necessary to say but little in support of the measures he advocates. I do not exactly know how we are to bring this practically before the authorities. It is in fact before them in the Proceedings of this Institution, and I do not suppose there is anything much further to be done. There is one thing I should wish to say. The Native Army of course is of immense importance as an adjunct to the British Army in India, and I think a great deal of mischief may possibly be done if the idea of a reserve for the Native Army is saddled in any way with a scheme for the localization of troops. I do not think I am very much in favour of the localization in England, but to localize in India would be a cardinal error in our military administration, because if you place the Sepoys in the midst of their homes and families there are influences which will not be quite wholesome. We are the strangers in India, and I think it is as well not to introduce a strong local influence among the native soldiers. They have ample opportunity of getting to their homes through liberal terms of furlough, but to make them limpets to their homes in their ordinary military life would be a great mistake. To localize the Sikh in the Punjab, and the Pathan in his own home, would, I think, be a very great error in military administration. And then, although I am a strong advocate for the one authority over the administration of Army matters, I cannot imagine anything more beneficial than that centralized decentralization which exists in India under the head of the separate Presidencies. It would be a terrible error were we to concentrate in the hands of the Supreme Government the entire military administration of that country. In the days of the Mutiny we saw this strongly exemplified. The Bengal Army you may say—because the Bengal Army is in the North-West Provinces—was at that time cut off absolutely from Calcutta; there was very little communication between Delhi and the Governor-General; but what happened? He had under his hand Madras, and he sent to Madras that excellent soldier, Sir Patrick Grant, to be his chief military adviser when he was cut off from the authority who was more legitimately his military adviser, namely, the Commander-in-Chief in India. Things went on exactly, you may say, as if nothing had happened, because there were sources of direct military administration both in Bombay and in Madras, separate and distinct from the machinery of Bengal, and I maintain, that notwithstanding the erection of railways and the improved means of communication, it is an enormous advantage to us to have three separate establishments from which the power of India can be directed whenever it may be needed, always under the direct control of the Government of India. What has occurred once may occur again.¹

General Sir C. P. BEAUCHAMP WALKER, K.C.B.: It is rather hard for those who have but little Indian experience to speak on this question, and it must also have the effect rather of deadening what I hoped would have been a very animated discussion. There is, therefore, only one point on which I wish to speak, because my Indian experience was very short, and that is taking this question from a sentimental

¹ It may be well to remark that railway and telegraph lines can easily be interrupted.

point of view. I am old enough to remember when we knew little or nothing of our brethren in the Indian service : we were two totally different services ; we had nothing in common ; we knew that there were those gallant men, and, if we had the good fortune to serve in India, we served with them, and found out what first-rate soldiers they were. But, really and truly, speaking of the Officers, we were separated into totally distinct bodies, and knew nothing of each other. I think any step which would restore the division which then existed and would separate those who do not elect to serve in India from those who take the general service of the Army, would be most unfortunate, and I for one should be very sorry to see it restored.

General Sir E. B. JOHNSON, K.C.B., C.I.E. : I did not come prepared, my lord, to make any speech whatever, nor in fact have I been able to read the essays ; but there is one point upon which I do feel very strongly, and on which I desire to make one brief observation. My friend Sir Frederick Haines has alluded to it, namely, the question of the restoration, in whole or in part, of a local European Army. I speak in the presence of a great number of gentlemen who, like myself, were in the Indian-European Army, and I can say that no man in the whole Service was prouder of the Company's Army to which I belonged than myself. I was Assistant Adjutant-General of the Bengal Artillery for seven years, and therefore knew something about it. But I lived in that melancholy time when the local army was induced by the action of the Government, and by nothing else, to mutiny. One of the finest bodies of soldiers in the world, owing to misjudgment and injustice on the part of their superiors, threw up the Service. I leave it to those around me to say whether they would like to recur to such a state of things as that. But who is there that can say that such a state of things may not again occur ? A misjudging Government, misunderstanding the feelings and character of British soldiers, may bring about what occurred on that occasion, and which resulted in the disbandment of the local European Army. I for one, therefore, do protest in the most earnest way against the restoration, either in whole or in part, of a local army.

General Sir JAMES HILLS-JONES, G.C. : I regret to say that I have neither seen the essays, nor did I know beforehand what subject was going to be discussed this afternoon. I am, therefore, very far from passing any opinion upon the most serious question that we have to consider. I do not think, in fact, I should have dared to have come forward if it had not been that there seems to be some hesitation in continuing this discussion—and it is on that account alone that I will trouble you with a few observations. The first point before us is "The requirements of the British Empire with regard to the European Army maintained in India." That is of course a question that one can hardly deal with in an offhand way. We know that certain requirements that were before the Government in India a short time ago are still before them, and that there has been the possibility of a serious war—a war in which the resources of India would require to be very heavily increased in order to meet the demands made upon them ; but I cannot myself say, offhand, what I should recommend in regard to the additional number of troops thus required for India, and yet, after all, this is the question that we have to decide. With reference to the second point, "Does our present military system meet those requirements?" I can only say I do not think it does ; and I think that is the view of most of the Officers who are responsible for that branch of the Service. With war looming in front of us, our resources would have been heavily drawn upon, and I am sure very heavy demands would have been made on England from India, and also in order to take up the garrison duties required in other directions. The present system of administration, I think, fails to meet the requirements of India, because on account of the short service there is a constant flow backwards and forwards to India of men who should be serving there. Men go out there for two or three years, and then they have to come back again and other men are sent out, thus leaving the regiments much under strength, whereas if the longer period of service in India were adopted, a great deal of expense would be saved, and more men would be with their colours. I therefore desire to see a longer service instituted. Then as to "The advantages and disadvantages of the system in force during the rule of the East India Company." I think that is a question which has passed away. The local service, as you all know, did very good work, and we were all proud of it, but

we still desired I am sure (most of us) to belong to the Royal Army of England, and to be one integral portion of it. The revival of the local service would, therefore, in my opinion be a mistake. I cannot answer the other questions, but, speaking of the localization of the force, I think such a system would be wrong, unless it were carried out by the double-battalion system—one battalion being kept in the district where it was recruited, and the other being sent all over India wherever it might be required. That would keep the danger of central localization away from it, and the battalion so sent would be benefited by mixing with other races, and this would obviate to a great extent the effect of localization. The one danger of localization is of course the baneful influences at home; but they would be counteracted a great deal by the regiment being sent away. On the other hand, the advantages of localization are that the natives of the different districts are kept separate. It is not right to mention names of districts, because it might give offence, but, merely for argument's sake, we may say that if the Sikhs are kept localized in the Punjab, and supposing dark days come on again in India, and a mutiny should take place, and the Sikhs mutiny? They have not mixed with the others, and therefore you have Oude to go to in order to counteract the mutinous movement amongst the Sikhs. This is of course against my argument with reference to moving the troops about; but there are points to be considered on both sides of the question—some for and some against localization. I think on the whole that the double-battalion system might be the best to adopt in the future. The question of keeping different centres of administration in India is also one with reference to which much may be said on either side. I am myself in favour of doing away with the local army in India—having one great centre at home; so am I in favour of having one great centre in India. I believe that is the case now to some extent, and that the Commander-in-Chief in India has power over the armies of the other Presidencies.

Sir FREDERICK HAINES: He has general command; but there is sufficient authority locally to control all the native troops, and the Commander-in-Chief never interferes in the different Presidencies unless they come more immediately under his notice.

General HILLS-JOHNES: Then the question is not that there should be a Madras Army, a Bombay Army, and a Bengal Army, but that there should be one Army, and that the regiments for Bengal, Bombay, and Madras should be sent from one part of India to the other. This I am in favour of.

General Sir EDWIN JOHNSON: That is a very large question.

General HILLS-JOHNES: It is a large question. Such, however, are my views after considerable study of the subject, and as such I lay them before you.

Captain BULLOCK, 1st Devonshire Regiment:¹ I feel that I am taking a very bold step, after so many senior Officers have spoken, in rising to speak in direct opposition to what they have said. But I must say, in reading Captain Browne's very able essay, while I think most people who read it will acknowledge his great mastery of the facts and figures, yet it seems to me that he has left out what to most Officers in England must appear almost the most vital question with regard to the supply of troops for India. I think most of us who serve in garrisons in England have felt very keenly the want of trained troops in England. Every year the very weak battalions in England get with great difficulty their drafts ready for India. After the draft—rarely less than 150 men—has been sent out to India, they are reduced to such a weakness, that they can hardly furnish fatigues in the garrison, much less train the men they have got properly. I think we must take that fact into more serious consideration than Captain Browne has done in his essay. In his proposals he has developed the scheme—a very nice scheme as far as it goes—by which he will save 2,000 men from the number of men sent out to India every year. That is about one-fifth² of the

¹ Captain Bullock's Essay was honourably mentioned.—ED.

² This was a rough estimate from Captain Browne's figures. *Vide "Journal,"* page 331. He gives 11,700 as the number despatched to India in 1883, while his scheme would require 9,300 to be sent, or roughly, he would save one-fifth.

drafts that go out. The smallest drafts that go out to India are 150 men. Therefore instead of sending 150 men with each draft he could send 120. We are thankful for small mercies, but I do not think that that would improve the British Army very largely. We should still have the old question that every year regiments at home were unable to furnish battalions to learn their drill, that the outside they could do would be to have one or two companies on parade, and to let them be drilled as well as they could. You cannot have much battalion drill with two small companies, which is about all you can get; and I think unless you have a local army you will never get rid of this difficulty. If you continue to feed the Indian Army from the integral strength of the home battalion, you will ever be left in this predicament—that you have not got regiments at home fit to drill or to raise to a high strength. According to the present system, a certain number are supposed to be nearly up to the war strength. But the roster for foreign service changes so frequently that we find continually regiments that are on a high strength are suddenly called on to supply large drafts for other regiments that are as suddenly brought up to the first strength for war. With these numerous small wars this will often happen, and the only way we can get rid of such a contingency is by having an Indian Army not dependent for its recruits altogether on the soldiers of the British Army. I could not delay the meeting to tell you the whole scheme that I would propose, but roughly it would be this : that instead of taking men away from the regiments, you should allow them, after they have served say two years with their regiments, to record their names for Indian service ; that instead of going to the reserve they should be allowed to go to India and serve say ten years, or any other number of years that may be considered by the medical authorities to be a suitable time to serve. But there is one difficulty that we must face. If you want longer service you must pay for it—and there is only one way in which you can pay for it—and that is by giving the men a pension. If you ask a man to give the best years of his life to soldiering he will not do it for nothing. The result of soldiering as it is now, is that it is calculated that 40 per cent. of all the tramps in England are soldiers, and I think that is rather a disgraceful thing. The soldiers lose their connections and their friends, and when they are turned out of the Army they either fraudulently enlist again, or else they are unable to get into civil work and become tramps. It has been proposed in one of the essays that Government employment should take the place of pensions ; but that is a very difficult thing to do. It could be done to a great extent, but you cannot guarantee it sufficiently largely to make it a great inducement in the recruiting market. You have two or three things to consider. Besides obtaining the appointment for a man, you have to get him to work sufficiently to retain the appointment—and old soldiers are not always very useful after they have left the Army when placed in valuable appointments. But I think if they had a small pension they could pick up their living at the end of their service. They certainly cannot pick it up with the deferred pay they receive now, because they generally spend that within the first week or two after they leave the Army. If they had a permanent pension, then with any little work that they get in addition they could obtain their livelihood. I would therefore propose that at home the service should be shorter than it is at present—three years—but that every man who wished to go abroad may be allowed to register his name for foreign service ; that he should serve for ten years in India, and that at the end of that time he should have not the chance, but the *right*, if well conducted, of continuing his service for a pension if he chose, and that that should be guaranteed to him in the most solemn way so as to restore confidence in the recruiting market. At present there is an absolute want of confidence. No man knows what his prospects are. A great many enlist thinking they are going to serve at home. They get to their regiment and find that they are next for the next draft for India. They go out to India and lose their friends altogether ; whereas if a man could enlist in England and have the hopes of going to India, and the right to a pension, I believe we should have as many recruits for India as we wanted, while those who wished to remain at home could do so. At the same time the regiments at home could be equalized in strength. Instead of having some regiments at a very low strength and some at a war strength, you may have them all at a good medium strength, so that they should be able to carry on drills and duties effectively at all times, and be

raised in time of war by the reserve to any war strength required. Of course to take men to India would appear at first sight to reduce the reserve. I do not believe it would. Of course by reducing the home service, say to three years, you must pass more men to the reserve, and by having the service in India longer than at present, you want fewer men for India, and the result would be to increase and not to reduce the reserve. Only one of the essayists (Colonel Boyes) has suggested anything like that, and he said at the end of five or seven years they should be allowed to volunteer for India. That I think would be to lose a great many of the best years of the soldier's service at home which had much better be abroad, and would send him out too late to India. But I think the proposal of Captain Browne does not meet the case. He certainly by his scheme of lengthening the India service makes the contingent for India smaller, but not sufficiently small to relieve the strain on the Home Army.

Major-General D. J. F. NEWALL, R.A.: I am encouraged to offer a few observations, more especially as some four or five years ago I delivered a lecture in this theatre on the subject of local organization, as reserves for India, which certainly does not immediately bear upon the question before us, but is a branch of the same subject. Granting to its fullest extent the position laid down by Sir Frederick Haines, that, from an Imperial standpoint, the garrison of India should emanate from one source, still, I think, we should press all aids to defence into our system, and in the lecture to which I have alluded, I instanced, amongst others, the expansion of convalescent depôts in India as one centre from which a scheme of local defence might emanate, that is to say, an industrial element might be engrafted upon them, and by degrees a local reserve brought about by such means as a second line. Captain Bullock has suggested that the recruiting in England scarcely allows of a sufficient feeding of the service battalions when engaged on service in India; in fact, he says, why weaken England, dangerously perhaps, to support India? This brings us to the immediate question of a reserve for India. I think my friend Sir James Hills-Johnes has intimated that his idea is, in a great European war, England might be much put to to furnish the supports for India, which are so necessary. Especially lately we were threatened with a war which would have absorbed almost all the standing garrison of India. We were engaged in a dangerous war in Africa, and India might have been dangerously denuded of its European garrison, especially in the south, in order to maintain a grasp of the soil of the country, and this is not to depreciate our loyal and gallant native garrison, which no doubt would have been sufficient in aid. Now we come to another point, spoken of by Captain Bullock. Vagrants—loafers as we call them—are often nothing more nor less than poor broken-down soldiers, who have been disappointed in their just expectations held out to them by Government, and have been reduced to a pitiable state, which we all deplore when we see them about the country, sometimes really a scandal to our cloth. These might, perhaps, be worked up, both in India and England, into a reserve, especially in India, where the "poor white" has often attracted the attention of Government, and a very embarrassing question he sometimes is, and a scandal to our nation it often is to see an Englishman roaming about India in a state of ruin and nakedness, bringing discredit upon his countrymen in the East. These are very often honest enough men, who only require to have something to do to become defenders of the State, and I do not see why (granting the strength of the argument for unification or centralization of a military system, such as Sir Frederick Haines has alluded to), I do not see why, engrafted upon that, we should not gradually produce a *landwehr* as one of the elements of strength in India. All countries have such a thing, it is simply a militia. We need not, by doing so, at all interfere with the grand Imperial military system of England, to which of course India looks for its main support. It seems to me we have all along turned our eyes away from that auxiliary means of strengthening the hands of the Government in India. I can only account for it by supposing that the traditions of the past age still, in some degree, hold their own in the councils of the day, that we fear, as the old East India Government did, an *imperium in imperio* in a Colony antagonistic to the parent State. Such an idea was apparently brought about by the secession of the American Colonies in the last century, but that has all gone by. We have had a glorious proof lately

that if a Colony is well treated, it is a support and a friend to the parent State. Why should not some similar support be given by the population of India, for there is a very large European population, who in that case would become a source of strength, rather than a weakness and a reproach to their native country?

Dr. ROBERT PRINGLE : My only excuse for rising is the remark which was made by a speaker alluding to medical fitness for continuing service. Now, I feel that a subject like this really resolves itself into that which will in any way promote the greatest fitness of the British soldier for service. I deal with it as an old Company's medical Officer, one who can go back to the Mutiny and before the Mutiny, who served in the old 53rd Bengal N.I., and saw his Commanding Officer on detachment duty thirty years ago shot in front of him at the first appearance of the Mutiny. After that I served in the old Bengal Horse Artillery as a medical Officer, and there I saw the remains of the local army. Since then I have had an opportunity of seeing, in a large convalescent dépôt in the Himalayas, the majority of the invalids, so to speak, of the large military Division of Meerut for nearly twenty years. During that time I have also seen the hill station of Chackrata, which has been commenced subsequently to these twenty years. On this account I take the liberty of rising: I feel it a great liberty, but still after all, I am sure one great aim of all discussions like this is really to see what will produce the greatest amount of fitness for work in the British soldier. I have no hesitation in saying that any one who had seen those soldiers rejecting the bounty and leaving the country, could not help feeling that most valuable men were being lost to India, and anything that would keep those men in the country would be of the greatest advantage. I saw the bounty given in many cases: in 1883, and it was little better than an auction; the men were bought at 60, 70, and they went up to 120 rupees. Most of the men who were bought at that rate were not worth it: the real men to have secured were those who would not take the money, and left the country. It is the men inured to the service that are really the backbone of the British Army in India. I speak with all the deference of a medical Officer, but if we think of it, the work that was done before Delhi was such as India has rarely seen, because India was really rescued in the Mutiny time before the European forces from England landed in the country. The work was crowned by the fall of Delhi, and when Delhi fell, the neck of the Mutiny was broken. Look, I say, at the work the old "dirty shirts" did before Delhi—will you get men of modern times to go through that? We take care of their bodies and their heads, and give them perfect ventilating helmets, and yet I do not believe they could now gallop about in the sun in the way they did in the olden times. I allow that in my old battery there was a terrible weeding before you could get men up to the fitness they were in, but what you really want is to try and keep the sober, steady, hard-working men in India, because they will go through a great deal of work, and they are always ready for it. I speak from the experience of one who has worked with the Rev. Mr. Gregson in the Soldiers' Total Abstinence Association for ten years, and I know these are the men you should try to keep in the country, but you cannot keep them without sufficient inducement, because they leave the country, and come home where they readily get employment. I cannot help feeling that if we want to hold India with that terrible climate we must keep seasoned men there. As I feel there were times in the Meerut Division, when, if regiments had been ordered on service and put on parade, there would only have been very weak regiments fit for duty. I do not know how much of this was due to defective barracks. They built a splendid set of double-storied barracks at Meerut, which were so thoroughly ventilated that they seemed to give some of the poor unfortunate men who lived in them dysentery, and there were barracks at the other end which seemed to pre-dispose them to fever. Be this as it may, the result was, if the regiments were paraded, it would have been a serious thought at the end of the rains, as to how many would be fit for a day's march. I remember when the Highlanders were at the hill station of Chackrata, the band came over to Mussoorie to play. They stopped at the foot of the Mussoorie hill, and the next day they came up, thus marching about 30 miles in the day. But the pipers started straight for Chackrata, and marched right into Mussoorie, a good 40 miles march. I do not think you could get men who were not seasoned and in a good state of physique

to undertake a long march like that. The experience of the 17th Regiment in Afghanistan, only a few years ago, is the best proof of what a seasoned regiment can do, and one that had benefited by residence in the hills. That regiment was enabled to do an immense amount of service, and was wonderfully ready for that service. I have that from good authority, and my only excuse for presuming to speak in a meeting like this is that, as a medical Officer, I feel that the one aim of the Government should be to strive to keep the men who are well seasoned and temperate. My old Commander in the Horse Artillery said to me on one occasion, in reply to a remark I made when I thought the sun was telling on the men in late parades, "Always tell me if you think that they are out too late." He said, "I look to you to send them fit for duty on parade, and I will take care they do it when they are there."

Colonel WILLIAM GALBRAITH, late Shropshire Regiment : My lord, the requirements of India as regards the strength and material of its European garrison have been clearly and ably stated in the essays under discussion. We have to provide, first, for its internal peace, and secondly, for its external defence. I am sorry that one point, which I consider most essential to the attainment of this two-fold security, has been almost overlooked by the essayists, and that is the necessity that a strong sympathy should exist between all representatives, military or civil, of the British race in India, and the native population. From personal experience I can say that a practical sympathy of this nature cannot be acquired until one has had time to gain some knowledge of the language and customs of the people; I therefore think it important that service there should be longer than Captain Browne suggested, and I believe that in other respects the change would be advantageous and economical. On first arriving from England, men are practically useless; not knowing how to take care of themselves in a new and trying climate, they are often an incumbrance rather than a help; they cannot carry on necessary intercourse with the native servants of the regiment, on whom, especially during a march, they are so much dependent. My experience is, that soldiers in India are most efficient from the 3rd or 4th to the 14th or 15th year of their service, and I think it desirable that every effort should be made to retain them to this period.¹ Looking to the fact that a great Power, the greatest in the East with the exception of England, is approaching us nearer and nearer every day, a Power which, being itself Asiatic, easily assimilates to itself the countries it overruns, and firmly establishes itself wherever it can seize a point of vantage, we can scarcely overrate the importance of fostering in every possible way that sympathy between ourselves and the natives of India, on which, even more than on the organization or valour of our troops, the safety of our Eastern Empire depends.

Colonel MALCOLM GREEN, C.B. : My lord, whilst not advocating a return to the old system, I should wish to say a few words in respect to what may perhaps be called a sentimental view of this question. As one who has passed the greater portion of his service amongst native troops, I would refer to the undoubtedly influence for good which the local European regiments held over their comrades in the native army, by whom they were always alluded to as "our" European regiments, and were looked upon as the standard of excellence which was to be worked up to, in distinction to regiments freshly landed from Europe, whose bearing and demeanour on disembarking and for years afterwards were not always such as to lead to very friendly relations with the Indian population, civil or military, whereas with the local European regiments, due probably in some measure to the men possessing a slight knowledge of the language, but mainly to the fact that at some time or another they were certain to come in contact and serve with every portion of the native troops of their own Presidency, there grew up a mutual good feeling and confidence between the two, which considerably enhanced the value of the native portion when employed in a combined force alongside their own European regiments; whilst these, on the other hand, heartily sympathized in the doings of the

¹ I should not as a rule invite men to serve in India for more than eight consecutive years.

native corps, or many of whose colours were emblazoned the same honourable badges as were borne upon their own. The term "camaraderie," applied to the feeling which occasionally springs up between European and native regiments, whilst temporarily employed on the same service, does not exactly express that to which I have alluded as having existed between local European infantry and artillery and native troops of the same Presidency.

Sir FREDERICK HAINES: I happen to be aware that at the present moment there is the deepest sympathy existing between the 92nd and the Ghurkas, the 60th Rifles and the Ghurkas, dating from Delhi. The 11th Hussars and the Xth Duke of Cambridge's Own Bengal Lancers are instances which occur to me; there are many more affinities of the sort; they would do anything on earth for each other; they are thorough comrades in every shape and form, as much so as if the British regiments I have mentioned were localized¹ to the same extent.

The CHAIRMAN: We have here amongst us to-day the Prize Essayist, Captain Browne, and I feel sure we should all be very glad if he would give us the opportunity of hearing his views on the subject with regard to any remarks which may have been made not quite in accordance with the views which he has expressed in that able essay which we have read with so much pleasure.

Captain G. F. BROWNE: My lord, ladies, and gentlemen, I had hoped to escape without making any remarks, especially as the views I have put forward in my essay have been scarcely if at all directly attacked except by one speaker, Captain Bullock, and in a general way by several others. Dealing first with those gentlemen who indirectly seem to advocate a return to long service, I would point out that the length of service for India, on which I have based my proposals, is no personal opinion of my own, but the almost unanimous opinion of Officers holding the chief commands in India in 1876, backed by that of the majority of medical Officers, which opinions were called for by Sir Frederick Haines when he was Commander-in-Chief in India. It seems to me impossible, in the face of such overwhelming evidence, to revert to a system in direct antagonism to these opinions. For my own part, I think that the frequent changes in the conditions under which men serve tend to make the Army unpopular. Army circular follows Army circular, and causes an uneasiness and feeling of insecurity in the ranks which must react injuriously on recruiting. Unless, therefore, there were distinct advantages to be obtained by the introduction of the local system, I would hesitate to introduce it, seeing how many would be the changes its adoption would necessitate, for no scheme can be so perfect in theory as not to require many modifications to make it practically workable. The short service scheme has already undergone the greater part of these modifications, and the European Army in India under the altered conditions is gradually getting into ship-shape. I think anyone who has an opportunity of judging must acknowledge that the drafts now sent to India are composed of good material. I happen to belong to the largest of our home garrisons, Dublin, and see reports and hear opinions of senior Officers on the drafts sent out by regiments in that garrison, and they are invariably satisfactory, excepting that some of the men are described as too young. If, therefore, these drafts instead of being composed of as at present 130 to 150 men were only 80 strong, you would be able to pick a magnificent draft, for there are always a number of men who, though fulfilling the necessary conditions and passed "fit" by the medical Officers, might with advantage be kept at home till the next trooping season. The recent lengthening of service by one year will not make itself felt till 1887, when the number annually required by the battalion in India will probably not exceed 110; by further lengthening the service one year, as advocated in my essay, an average of 80 men would suffice. Captain Bullock based his argument against my proposals on the erroneous supposition that I proposed to send out 130 men from each battalion, instead of 150 as at present; both these figures are, however, incorrect. Under the present system I find that in the last five years an average of 130 men has been sent

¹ Individually and regimentally we all have a period of griffinage; but the period of disqualification from this cause has been grievously overstated. The new arrival in either case soon becomes accustomed to the ways and climate of the country.

out per battalion, and under my proposals as before stated 80 would suffice. Drawing 80 instead of 130 or 150 annually from each home battalion would mitigate to a great extent the difficulty of carrying on the home training and routine duties which he has just described. Probably my figures misled him. I said that 5,300 men would annually proceed to India in detachments, but neglected to point out that as the infantry in India is roughly two-thirds of the entire force, only two-thirds of this number, or 3,530 men, would be drafted to infantry, making an average of 80 per battalion. Colonel Galbraith agreed with me to a certain extent, but proposed to lengthen the term of service by one year more than I have. I think, looking at it purely from an Indian point of view, that it would be an advantage, but I have endeavoured neither to sacrifice the Army to the Reserve nor the Reserve to the Army; but to make a compromise which will bring the number required for the annual draft within reasonable limits.

General D. J. F. NEWALL: We seem to have been discussing a subsidiary development or corollary of the main Imperial question as to a "reserve for India" for the requirements of the British Empire, and the means of maintaining or feeding the present garrison, which is only one portion of the argument under discussion—the garrison of India, which we all know to be furnished by England. The main discussion seems to have been almost neglected by us, namely, the formation of a "*second*" and "*third*" line as "*support*" and "*reserve*." I merely hazard that suggestion with due deference to your lordship.

The CHAIRMAN: Which portion of it?

General NEWALL: Point 2. "Does our present military system meet those requirements?" Point 4. "The probable advantages and disadvantages of localizing the whole European force maintained in India." Our chief arguments have been directed to the feeding of the garrisons of India under its present conditions, and not as to the changes in that condition suggested by the fourth and fifth questions on the agenda paper.

Major DUNDAS: Perhaps you will think it rather presumptuous that one who has never been in India, nor likely ever to go there, should address you on this subject—viz., a change in the constitution of our Army serving there, which I feel convinced would be in itself an improvement, and at the same time do away with the weak point in our communication with the East—I mean Suez Canal; and recent events have shown how easily that wet ditch can be blocked either accidentally or by design. My proposal is to keep 20,000 or 25,000 men always stationed at the Cape for three years of their service. I would keep them in England for their first year, at the Cape for the second, third, and fourth, passing them on to India for a term necessary to complete twelve years' service. You would thus be enabled to send to India well-seasoned young men, of a proper age, and in the prime of their service. I see several Officers here present who served with me at the Cape many years ago, and I think they will bear testimony to the fact, that there is no other place in the world where young soldiers develop so rapidly and become really fit for work in every possible way. While in that Colony I have often seen drafts come out from England who improved so rapidly in physique that a year or eighteen months made such a change that one hardly could believe they were the puny boys landed there. I believe, too, that the expense of keeping them there would be less than what it would be at the depôts at home. I saw several battalions passed on from the Cape to India at the time of the Mutiny, and they did as good or better service than those who went out direct from home.

The CHAIRMAN: Ladies and gentlemen, I regret extremely that we are deprived of the valuable remarks which we should have heard from Lord Napier of Magdala, had he been here to-day, and I am sure he will deeply regret that other engagements have prevented him from attending. Before I commence to make a few remarks I trust I may be permitted as Chairman of the Royal United Service Institution to express my own, and I feel sure your congratulations, to Captain Browne upon having won the Prize Essayist Medal this year. Whatever may be thought of Captain Browne's suggestions as to the improvement of the Army in India, I am sure there will be but one opinion that the paper is a most valuable one, and the views therein contained very ably and most clearly laid down. Without in any way detracting from the merit of Captain Browne's essay, I feel bound to say that whilst reading the other essays

which have been honourably mentioned, I have been extremely struck with the manner in which they have been written. I think that it is a very healthy sign of the vitality of this Institution that we are able to boast of having amongst our members such admirable essayists. I presume that it is not expected that I should attempt to criticize the varied views which have been expressed in this discussion. I merely propose to make a few remarks on the important questions that have been placed before us. The idea of resuscitating a local army in India has certainly met with no favour in this discussion, nor from the essayists. There is no doubt it would be a very fatal disruption of our present military system, and I believe it would tend in great measure to separate into two distinct bodies those who, under such a system, would have to serve in India, and those who would be serving in other parts of the Empire; such a result would be very much to be deplored. I have been much struck in reading the essays to see how impossible it has been found to separate the question of a local, or a non-local army in India, from that of Army organization. Every one of the essayists has gone at considerable length into the merits and demerits of the present system, and there is no question that the well-being of the Army in India is inextricably mixed up with the general Army system. I believe at the present moment our recruiting system is all tending in a right direction, but there is no question that when the so-called short service system was first introduced the change was made without any reference whatever as to how it would affect the well-being of the Army in India. That Army is essentially one where we want the most ripened soldiers that we can find, men in the prime of life, and men who are willing to give the best years of their life to a country where in a great many places the climate is not all that could be desired. I am very glad, therefore, that recent changes have all tended to prolong the service of men belonging to regiments in India, and I should be very glad indeed to see more inducements held out to such men to remain so long as their physical powers will admit of it. At the same time it is only right and reasonable that if we, either by bounties or prospective advantages, induce men to remain in India after their regiment comes home or their first engagement is completed, we are bound to consider that man in his future career, and should his health break down, or should he fulfil his engagement and come back a little the worse for long residence in a tropical climate, there should be some place found for him in our military system, so that he may go on serving up to the time when he would be entitled to a pension, and would be able to retire to his own home with honour to himself and to his country. I cannot help thinking that our present double-battalion system rather militates against sending out the best men for India. There would be, I consider, a very great advantage if the regiment serving in India had a distinct recruiting system independent of any other battalion. I think we should get better recruits; for the same reasons that induced men formerly to enlist for the local European regiments in India would still hold good, and many who like an adventurous life, have read about India, and have heard about it from those who come home, would be inclined to enlist for that service. I believe myself if we were to go back to the old form of Company depôts for regiments serving in India we should get a superior class of recruits that would make the Army serving in India more efficient than it is at the present day. We are all deeply interested in the Army in India and anxious that it should be kept up in the highest state of efficiency. These essays will no doubt be read by those who are responsible for the organization of our Army, and I trust that the many excellent suggestions contained in them will be carefully considered, in view to the improvement of that important portion of our Army.

Friday, June 19, 1885.

COLONEL SIR LUMLEY GRAHAM, BART., Vice-President, in the Chair.

SOUDAN WARFARE.

By Major C. COOPER KING, R.M.A.

MANY of those who theoretically study the art of war have viewed with more or less disfavour the method of fighting that has been lately adopted for meeting savage tribes. Squares have gradually assumed an authoritatively recognized position as the most suitable tactical formations for such warfare in preference to those which were in use half a century ago, and that without reference as a rule to the number of men engaged. Notwithstanding the enormous improvement in arms and equipment of modern European armies, we seem to be insensibly drifting into the permanent adoption of formations that have under every condition some unavoidable elements of weakness.

No one who has read the account of the battles in Zululand or the Soudan but must fully recognize the self-denial and bravery of those who fought there. The circumstances attendant on each campaign were so peculiar as to necessitate special tactics. In the Zulus we met brave savages badly armed but led by skilful leaders, and with a tactical system that was new among such people.

In the Soudan we have found a still braver adversary, equally indifferently armed, and who showed an even more splendid indifference to death. Without as much organization as Cetewayo's host they possessed a daring religious fanaticism which took the place of skill.

We all admit this. We admit further that these exceptional circumstances must be dealt with at the time as best they may. That some means of successfully engaging such adversaries must be devised on the spur of the moment, and that good, bad, or indifferent they should not be subject to an immediate hostile criticism. But after hostilities have ceased they may well be submitted to friendly examination, not necessarily to find fault with anything that has been done in the past, but to discuss calmly by the light of that past experience whether the methods adopted were really the best to be transmitted to those who may have in future wars again to measure swords with similar foes, were really such as should be permanently embodied in the drill book.

The following remarks are drafted solely with this object. If the quadrate formations employed in each of the African campaigns, except those of Egypt, Kaffirland, and the Transvaal, are really the

best and most suitable for such warfare, then to examine them can do no harm. But we must persistently bear in mind that in savage warfare something must be done to meet exceptional difficulties under novel conditions without reference to precedent, and that the squares in the Soudan have been on the whole successful. Nevertheless, we may still with benefit discuss the tactics employed there at leisure, and either decide on adhering to them absolutely, or see whether something better could not be proposed.

After all, it is but preparing ourselves for future wars of a similar character should they occur. All great changes in tactics have so been brought about. The teaching of 1856 and 1870-71 was commenced on the battlefields themselves, but it did not stop there. The dissolution of the close formation under the terrible breech-loading fire was recognized as unavoidable. When peace came, therefore, the leaders of the armies applied the lessons they had learnt, and modified the old formations in accordance with them. There was no intention of blaming those who had fought brilliantly and well. Practical soldiers only sought to be ready to meet similar conditions with even better hopes of success.

The experiences of the Soudan seem to offer a further opportunity for similar preparation. Many Officers in high authority and of ripe judgment question the suitability of the tactics employed there. When such men as the writer in "Blackwood" speak of the massive squares as "an unintelligent and dangerous formation—inexcusable except when it can await attack on its own ground, and then only when the firearms in the hands of the enemy are small in number and inferior in quality—a formation which neutralizes the advantages of superior training and weapons on the part of the soldier, and of superior science on the part of the General;" when Sir Patrick McDougall, in a recent number of the "Nineteenth Century," writes that "the formation of several thousand men in one square, bearing in its womb crowds of camels and all the impedimenta, seems expressly devised for ensuring a maximum of loss from hostile fire and a maximum of confusion, combined with a minimum of mobility," there must surely be grounds for discussion. The question bristles with exceptional difficulties to those who have had, like the writer, no practical experience of war, and who are ignorant of the exact character of the terrain on which the battles were fought. The information obtainable is at present meagre, and must be so until those who were actually engaged can give their personal evidence. The arguments used, therefore, must be at present largely based on theoretical grounds.

At the risk of seeming to utter mere truisms, it will be well to establish first the known principles on which all tactical formations are dependent.

Throughout all historic time these have been influenced by—

- (1.) The armament, tactics, and bravery of the enemy.
- (2.) The weapons, numerical strength, and discipline of the adversary.

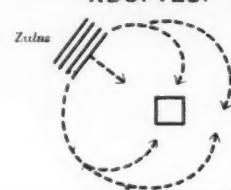
As "fire tactics" among European nations have developed with



GINGHILOYO

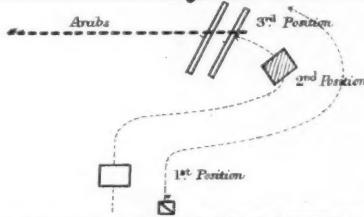
Fig 1.

ADOPTED.



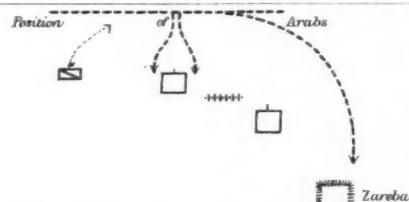
EL TEB.

Fig 2.



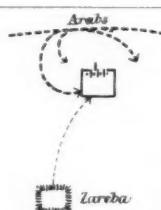
TAMAI.

Fig 3.



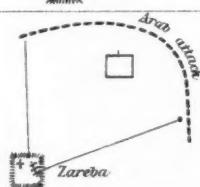
ABU KLEA.

Fig 4.



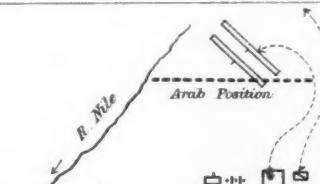
ABU KRU.

Fig 5.



KERBEKAN.

Fig 6.



N.B. The above sketches have no pretension to accuracy
being compiled only from Newspaper Reports.

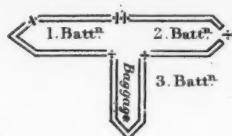
CHESS OF FORMATIONS.

Plate XIV

MAJ. TRISCOTT.

Fig. 7.

SUGGESTED.



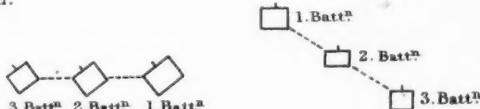
COL. HUNT.

Fig. 8.



A.&N. GAZETTE.

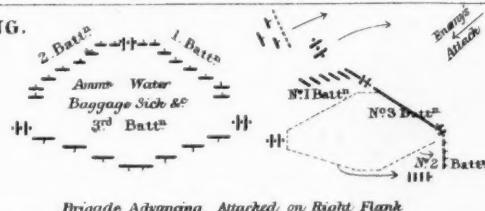
Fig. 9.



Skirmishers between Squares in each case

GEN. FIELDING.

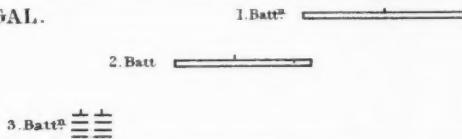
Fig 10



Brigade Advancing. Attacked on Right Flank

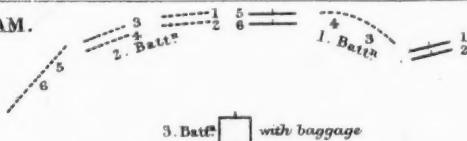
GEN. MC DOUGAL.

Fig. 11.



SIR L.GRAHAM.

Fig 12.



*Artillery acting independently
Mounted Infⁿ Scouting, & covering flanks & rear.*

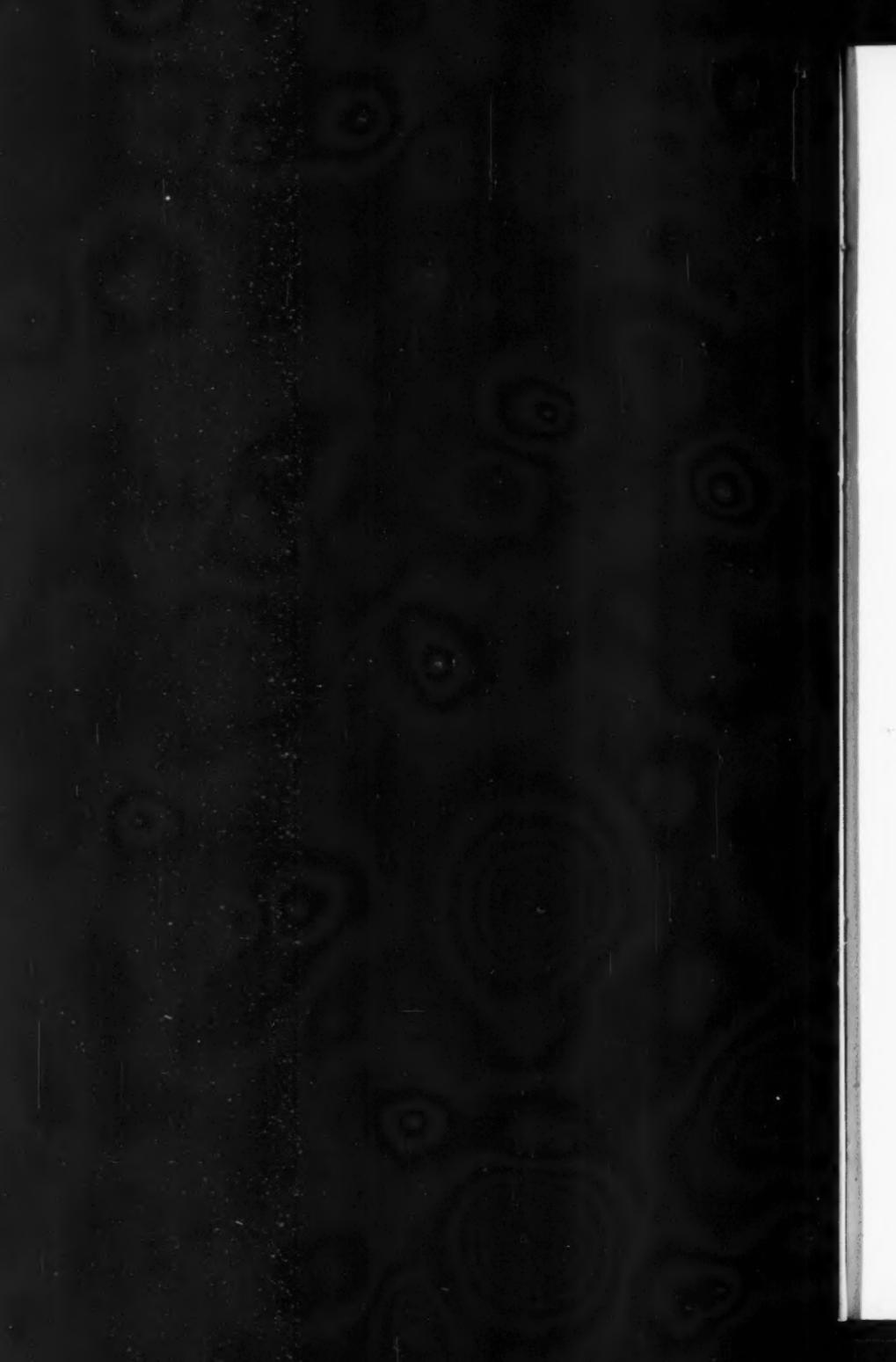
$\frac{1}{2}$. Battⁿ

$\frac{1}{2}$ Battⁿ with
Baggage.

1. Battⁿ

2. Battⁿ

3. Battⁿ \square Baggage



the improvement of firearms, so have "shock tactics" diminished in value, because of the difficulty of applying them. But this has been solely caused by the fact that all civilized armies have practically improved in equal ratio, and the attack formations that have arisen have been devised to meet adversaries similarly armed. The gradual change, owing to the increasing deadly effect of firearms, has induced a gradual loosening of the fighting masses.

European armies have passed through three tactical periods so to speak within the last century:—

(1.) The columnar, in which the square, a hollow column, is included.

(2.) The line, two or three deep, in serried order.

(3.) The loose order, including purely skirmish formations.

Thus the first was the most massive, and has gradually been abandoned because the fire became more deadly.

The column was never a favourite in England, though foreign nations believed largely in its moral force. It was thought that when the fire-loss was small, it would ensure the eventual arrival at the point aimed at of an intact and disciplined body of troops. At other times it was used, as Napoleon did towards the end of his career, when the men were so ill-drilled and ill-disciplined as to be untrustworthy in any other order. Its half brother, the square, had three uses in early days, viz.:—

(1.) As a protection against rapidly-moving troops, when muskets fired slowly and were of inferior range, in order to prevent the enemy from closing.

(2.) In retreat from any special cause, to avoid demoralization or to protect non-combatants.

(3.) When small bodies were surrounded on all sides by such large numbers of the enemy that in no other way would the flanks and rear be safe.

The squares at Waterloo are examples of the first case and require no special comment.

At Langensalza, in 1866, the defeated Prussians fell back in squares, which were penetrated, but not broken or dispersed, by the brilliant charge of the Hanoverian cavalry.¹ In the disastrous retreat from Cabul in 1842, though the column, overburdened with transport and non-combatants, speedily dissolved into a mob, it has been stated that an effort was made to enclose the women, children, and sick in a hollow square against the Afghan hordes which threatened every side; and in the first Ghoorka War mention is made of a similar formation being used in presence of a considerable force of the enemy. As a writer in the "Army and Navy Gazette" recently pointed out, "even small bodies of cavalry have at times been compelled to do likewise against overwhelming odds. In 1812, Sebastiani's division was saved from probable destruction by Count Bismarck's squadron of Chevaux-legers forming square and checking the rush of the Russian irre-

¹ "The Last Campaign of Hanover," by Captain H. Brackenbury, R.A., see Journal of the Institution, vol. xiv, page 255 *et seq.*

gular cavalry ; similarly Desaix in Egypt formed square with a small body of cavalry 50 strong against the attack of 1,500 Mamelukes ; while in 1843, in Algeria, 135 French troopers formed a dismounted square round their horses and beat off 1,500 Bedouins.

But in these latter instances the formation was unavoidable, as it was in the Zulu campaign, when it was necessarily adopted because of the tactics of the enemy (Fig. 1). The system of attack of the Zulu impi was essentially enveloping. Its two arms moved out until they joined, and then only was the attack firmly pressed home. In such a case the square was the only possible formation to meet the enemy's tactics, bearing in mind the disparity in numbers of the two combatants. But as Sir Patrick McDougall points out, the square did not attempt to manœuvre, and at Ulundi halted on rising ground to receive the Zulu onslaught.

Thus, formerly, squares were only used against cavalry or when surrounded, and always acted strictly on the defensive.

Line formations always found favour with British forces, because they fully developed the fighting spirit of the nation, and gave the widest possible front of fire. They depended for success on steadiness, courage, confidence, and drill. Against a frontal attack, provided its flanks were safe, the line was able to develop both fire and bayonet tactics. All that could be said against it was that it was slow in movement and difficult of application in bad ground. Even in the days of Brown Bess, when the fire was slow and inaccurate, the line met brave barbaric troops with frequent success.

In the early part of the Mahratta War, in 1803, the British force, 4,500 strong, in single line, two deep, advanced against 19,000 Mahrattas, of whom 6,000 were cavalry ; and, though exposed to a heavy artillery fire as well, "such was the steadiness of the British troops that they advanced with the utmost coolness and without removing their muskets from their shoulders till they came within 100 paces of the enemy, when they fired a volley and charged."

In such a case as this the wide front of the line afforded the most hopeful chance, as the event proved ; and of the bravery of the Mahrattas there could be no doubt.

Even in later times the attack of fanatics like the Ghazis has been beaten back by fire from what was practically a line. At Ahmed Khel the Ghazi assault was at first chiefly frontal, and was conducted partly by fire and partly by charge. The British troops were to all intents and purposes in line, and though there was a partial fall back under the influence of the first charge the enemy never really closed in strength, but were stopped by the storm of bullets. When the attack was further pushed around the flanks, it was checked by the fire of the 40-prs. on the left and by the horse artillery on the right. The extension of the front of battle enabled a finally successful defence to be made with comparatively slight loss.

Here, again, there could be no doubt as to the bravery of the Afghan rush, and that it did not close more thoroughly, was due to its direction and narrow limit. It was not strong enough to overlap the wide formation of the army, which may be considered as practically linear.

Doubtless determined men with an absolute fearlessness of death will execute a more formidable charge than cavalry, for they mean to penetrate if they can. The horse and his rider may not be, and usually are not apparently, so resolute; otherwise more troops would have been broken by them. But it has long been held, even as far back as the Russian War, when the arms were muzzle-loading, and the fire therefore slow, that cool infantry in line can beat back a cavalry charge, quick moving though it be. The 93rd Regiment did so at Balaklava in 1854, for example, trusting to their wide front of fire. With equal steadiness and with infinitely better weapons it seems impossible to believe but that any footmen, who must move more slowly than mounted men, could be similarly checked.

Lines, therefore, trusted to their wide front to prevent the enemy from closing, and were considered a safe formation even against cavalry so long as ammunition lasted and the attack was frontal.

With the third class of attack, that in "Loose Order," we have little to do. Only designed to minimize loss from the effects of breech-loading rifles, it is evidently unsuitable where the enemy is only partially so armed; it is difficult to guide, still more so to lead, and is bad where the enemy's plan is a determined and reckless charge.

Summarizing these methods of fighting, it will be seen that the column or square gives the narrowest front of fire, the line the widest. Of the two the square is most exposed to loss if the enemy be provided with rifles. Both being dense in character are able to resist or inflict a shock. But there is a vast difference nevertheless in their powers in this latter respect.

The square has many inherent weaknesses; it lacks mobility, and is difficult, even with rigidly drilled troops, to manoeuvre over bad ground, is impossible with raw troops, and is bad with mixed levies. Its fire action, unless the enemy's tactics are from the first enveloping, is limited to one-fourth its strength. It cannot move rapidly, or make a rapid offensive movement, without either altering its formation or dislocating its parts. It has four weak points at its angles, but this is not so great a weakness as would at first appear, as in the heat of fighting three angles become flattened. Still, General Sir G. Graham acknowledged it, when, in his despatch of the 11th March, 1884, he stated that "it is the habit of these Arabs to attack the angles of squares, as they know that least fire can be brought to bear on them from these points." If broken, no formation is more helpless. Though strong for weak bodies of men, because of their very weakness, it is not good for strong bodies of drilled troops, because it does not develop their strength. Its rear face is practically useless, its flank faces only come into operation when the front is overlapped.

Line, on the other hand, admits of the greater part of the whole force using their rifles from the outset. Under limited fire it is not so exposed to loss. It is easier applied to broken ground than the square, and is at once available for an offensive charge. If broken through, it is less likely to become disordered than a square.

These comments apply both to large and small bodies, but the dis-

advantages referred to seem intensified as the numbers increase. Assuming these theoretical statements to be probable, let us apply them to the history of the campaigns as far as we know them.

From the beginning it must be clearly understood that there can be no question as to the necessity of the square where the numbers are small. At Abu Klea and Abu Kru Sir Herbert Stewart and Sir Charles Wilson had no choice, all the more perhaps because of the amount and slowness of movement of the transport which it was thought advisable to take with the force.

The absolute necessity for this naturally cumbersome formation is not so apparent in the other battles. The Soudanese tactics are mainly those of shock and charge; fire seems quite secondary. They sought to close with their adversary, and this being so, it would certainly appear that the main object of the formation to resist them should be such as would prevent their closing at all. A bold rush is best stopped by the rain of bullets; that alone is certain. The more lead that crosses the attacking zone the better, especially if the actual charge be local and limited. The narrower the front of attack, the wider within limits should be the front of defence, to prevent the enemy from avoiding the fire by getting round the flanks and so developing an encircling assault. If the front be wide enough he could never get round at all. The Arab method of fighting is the oldest in the world with brave troops. So far as the meagre evidence we have goes, it affords these general conclusions, that the actual fighting was very severe, but comparatively short in duration; that the square was, from the earliest, used offensively, and when broken, was in imminent danger of dissolution; that when so broken, the disordered mass fighting and firing in a mob or group ran serious risks of inflicting loss on friend as well as foe.

On the other hand, where the formation was more linear the success was proportionately less doubtful.

A brief reference to the several battles will make this more apparent. In the first Soudan campaign the fights at El Teb (Fig. 2) and Tamai (Fig. 3) were most important. In the former the square, composed of six battalions with the Royal Engineers and Naval Brigade, passed along the enemy's front exposed to indifferent rifle and Krupp artillery fire, and then broke into two irregular lines, which successfully drove the enemy from his position. Practically linear tactics decided the battle; in the advance one-fourth or at most half of the force only could use their rifles.¹

At Tamai 4,300 troops were formed in *two* squares, but even here, though the front of attack was wider, the space between them being 400 yards, still only one-fourth of the men could fire to check the Arab rush. In this fight, too, the breaking of the leading square followed naturally on the attempt to charge with its front face. The flanks and rear could not conform to the movement with sufficient

¹ The advancing square, with a front of about 400 yards, was attacked on two sides by Arabs, "Not in masses, but in groups of twenties and thirties"; and before it formed line, had become dislocated by the tendency the sides had displayed to push out and prolong the fighting front.—[CORRESPONDENT.]

rapidity. The presence of the second square, which increased the frontage of the line of battle, was here most valuable.

But with a series of such units there is always the danger of loss, especially in moments of peril, from their own fire taking effect against their neighbours.

The narrow front of the leading square seemed to invite envelopment directly the enemy recoiled from the fire of its front face, which on moving forward afforded gaps by which the Arabs could penetrate.

Of the operations on the Upper Nile less is known at present.

As before remarked, the square was unavoidable with a small force operating isolated against large numbers. But its partial penetration at Abu Klea (Fig. 4) would accentuate the natural weakness of the formation. English soldiers, with their want of training and heavy equipment, are not likely to be so swift of foot as a hardy, half-clad Arab. Skirmishers retiring, therefore, unless they do so in full time, are likely to be a source of weakness rather than strength. The main body they cover can hardly use their rifles, even though the enemy be at the very heels of the advanced troops; and it is quite open to argument whether, admitting as we all must the necessity for the square in this case, the employment of skirmishers in addition is advisable when within charging distance of a light-footed adversary. The square 1,400 strong, 2 deep, gave a frontage of 350 men.

Furthermore, when pierced the rear face and one of the flank faces naturally faced about to meet the enemy that was then in hand-to-hand conflict with them. It is impossible to imagine that the rifle was not used then, and if it were used it would certainly be dangerous. Bullets are no respecters of persons, and in such a case might not find their billets in Arab bodies.

At Abu Kru (Fig. 5) the same formation was successful in defeating an enemy that had already been roughly handled, and they were supported for a time by troops with artillery in a zareba on its flank. That is to say, again there was a wider front of fire. The force, 1,200 strong, 2 deep, gave a frontage of 300 men; but after the enemy's repulse, "had the square," says an eye-witness, "deployed at once and opened fire, they would have inflicted enormous loss." At Kerbekan (Fig. 6) the attack seems to have been linear, and was completely successful. Held in front by guns and two companies of the Staffordshire Regiment, the enemy's position was carried by assault in line against the right flank, and his one attempt at charging received a decisive check.¹

It is true that the numerical disparity between the combatants here was less marked than in previous cases, but the position was strong, and the enemy better provided with rifles. The odds were three to two at Kerbekan, as compared with Tamai, where, in addition to 18 guns and Gatlings, the odds were rather more than two to one, and about four to one at Abu Kru.

So little is really known of the recent Suakim campaign that the

¹ "The enemy tried a spear charge, but were shattered in all directions before they could get anywhere near our ranks."—[CORESPONDENT.]

information is insufficient at present to draw any fair conclusions. But it may be remarked that the difficulty of moving large squares encumbered with a mass of impedimenta received additional illustration in the fact that they were on more than one occasion partly dislocated and dragged asunder by the more rapid movement of the men that formed them in comparison with that of the camels and transport enclosed within them. Attacked at any one of these moments, it would have run great risks. "The square advanced faster than the camels," says a correspondent, "and soon they pressed upon the rear. The left also opened, so much so that the Royals and Greys were faced round with it." Furthermore, we have evidence that a single company of the Berkshire Regiment formed in solid mass was capable of holding its own without difficulty in the fight at Hasheen.

It therefore may be said that at El Teb and Kerbekan, where the linear formation was adopted, the success was complete, and the loss comparatively small; 35 were killed and 155 wounded in the first-mentioned battle, in the second 12 killed and 46 wounded.

At Tamai, and unavoidably at Abu Klea and Abu Kru, the quadrate formation was employed. At Tamai 107 were killed and 116 wounded; at Abu Klea and in the Suakim fights the loss was again proportionately heavy, there being 300 killed and wounded at the former battle.

It would seem evident, therefore, that where fire was fully developed success was certain. The square alone is incapable of such development.

We have to meet two considerations: the necessity for conveying water as well as ammunition, ambulances, &c., and the apparent advisability of developing to the utmost the fire action of the force. Its value is testified to by eye-witnesses at Abu Kru, where "several of the sheikhs had fallen, and as the enemy came nearer they suffered more terribly. At 100 yards there seemed to be a slight check. At 50 yards there was perceptible wavering, which culminated in evident check when the first ranks of the enemy were within 30 yards." If this be so, the "check" would have been more decisive, and have operated earlier, had it been possible, which it was not here, to increase the number of rifles in use. Again, the solid Berkshire company at Hasheen, which could not be penetrated, beat off the enemy with fire.

The "supply difficulty" is serious. Though only ambulances and spare ammunition were carried at Tamai, and the water was conveyed in the men's water-bottles, it required 600 camels for transport, 350 mules, and 100 camels for the surgeons. All these are evidently grave elements of weakness, and there can be but little doubt that unless the force be small and isolated, these impedimenta should be left in rear, entrenched in a zareba as at Tamai, if necessary, until after the battle has been fought. The enemy is only likely to partially disturb it. The Soudanese seem to revel in fighting, and like true tacticians, make for the sound of the guns and the fierce excitement of the battle. Where such baggage zarebas were formed they were never very seriously attacked. The Arabs were content to employ

their strength against the fighting men. If the enemy be beaten these necessary stores can be brought up, but if present in line of battle, or when fighting may be possible, or may be expected, they only encumber the force, destroy its freedom of action, endanger its safety, and limit its mobility.

It is almost worth asking whether this excessive care for the comfort of the men is not in danger of being overdone—whether we are not too generous in the matter. In no European battle would the admission of such a mass of impediments in or close to the fighting line be for a moment admitted. The only recognized necessity there is ammunition. Though the suffering to the combatants may be greater, it is possible that the safety of more men is ensured by this apparent harshness. In these Soudan battles the destruction of transport animals and camp followers attendant on them forms a marked feature. However harsh it may seem, it may possibly, though it is hard to tell, be greater kindness to the greater number to fight the battle first and leave attention to the men until afterwards. Where the enemy does not remain long on the battlefield, but being beaten abandons it rapidly, and where the duration of the fight is not for many hours, it may well be asked whether the tendency to introduce so much impedimenta, other than ammunition, into the actual fighting ground is not being pushed too far. Certainly it was not customary in former days under similar conditions. Some suffering is doubtless avoided, but with it come attendant evils and, possibly, a greater total loss. This is especially worth consideration when the transport animal is so large and unwieldy as a camel. This question is one, however, which only those who have served in the Soudan are qualified to offer an authoritative opinion on.¹

The greatest difficulty lies in offering suggestions for consideration as to the formations that should be advocated and taught for future wars. The experience of those who have so gallantly carried out the operations in the Soudan is as valuable as it is unique.

If it be possible, the theoretically best formation would be one that—

(1.) Can develop a heavy fire so as to sweep away the attack before it can close.

(2.) Afford a wide front of operation so as to prevent or limit an outflanking movement.

(3.) If its flanks are nevertheless turned, should still have an intact solid nucleus incapable of being easily broken up and of protecting the impedimenta that seem to be considered necessary.

All those who have spoken or written about it advocate, of course, either line or square pure and simple, or a combination of both, to fulfil these ends.

¹ At Abu Kru the fighting square held 60 camels; that at Abu Klea 100 camels, of which 50 were for cacolets and litters, the rest for medical stores, water, and ammunition. In marching at Abu Kru as well as at Hasheen, in Eastern Soudan, the formation was often broken and pulled asunder by the slow-moving camels. These animals, writes a correspondent, "obstruct vision, impede mobility, destroy symmetry, and are an unsettling element in a square of men."

The square—so it is said—the Soudanese warriors thought was craftily adopted “so as to take them in by opening out and then kill their braves inside.”

Its retention as a battle order has been advocated by a writer in the “Army and Navy Gazette” of the 2nd May. But he, like Sir Patrick McDougall, though the latter questions the desirability of such a formation at all, is disposed to substitute a methodical arrangement of small squares in échelons or in line in preference to the large single square. (Fig. 9.)

This is always open to the objection that it requires good ground for its employment, and great steadiness both in the firing and in the movement of the several fractions. Even then, though the front of battle is increased, the front of fire bears only a small proportion to the number of men employed.

Major Triscott, R.M.L.I., suggests the arrangement of the force in the form of a hollow T, the faces being two or four deep, and enclosing the baggage, &c. (Fig. 7.) Colonel Bland Hunt proposes a linear formation, the flanks only of which are in direct échelon; thus forming when halted a line either straight or indented with flanks refused, the rear being closed by the baggage animals and transport in line. (Fig. 8.) Both these suggestions, however, would probably be difficult of application in rough ground, and if penetrated are again subject to the weakness of all hollow formations, viz., that the enemy is then able to assail the rear of any portion of the force.

Another Officer in the “Army and Navy Gazette”¹ proposes an arrangement in short échelons, but this seems also open to the objection of difficulty of application to the ground, danger from careless shooting, and possible separation or isolation of the fractions.

Sir Patrick McDougall would carry out the same principle on a larger scale by having “battalion lines in échelon, advancing either from the centre or one flank, according to the general direction of the enemy’s advance.” (Fig. 11.)

Each plan, therefore, proposes to increase the front of fire.

Possibly the truth lies in a combination of the square with the line based on our present drill formations.

The single battalion might still have its four leading companies in firing line, which would give a frontage equal to at least one-half the strength with a rifle fire of one-half; the remaining four companies in square behind the centre or a flank would protect the rear and contain the transport.

This formation, of course, would only be possible when the enemy’s strength was not such as to be necessarily enveloping. In such a case the battalion square four-deep seems safer than any arrangement of line and half battalion squares, but skirmishers should be used with caution and withdrawn early. Even here an oblong with its long face towards the enemy would be better than a regular figure, as giving a

¹ General the Hon. W. Feilding. Since writing the above he has been good enough to furnish me with a sketch of the proposed formation under two conditions. By these it will be seen that the formation is much more flexible than at first appears. (Fig. 10.)

wider front of fire. Similarly for a brigade, the central battalion might be in line with the other two battalions either partly deployed and partly in square on either flank in échelon according to the ground and the enemy's position.

In neither instance does it seem advisable, as has been occasionally done, to enclose the artillery and cavalry within the square. Machine-guns or Gatlings are different. They are but infantry weapons, and should be subject to the same treatment. But guns owe their chief usefulness to their range and destructiveness. They are very mobile, and are capable of rapid transference from point to point. Acting independently and intelligently protected by an escort of mounted infantry or cavalry, they could seek opportunities for effective action not in the immediate neighbourhood of the fighting bodies. In the square itself they take up room and are less effective than a close infantry fire. Between the squares or too close to them they run risk of disturbance and do not enlist their most valuable quality—range. The same remark applies to the cavalry. In such ground as that of the Soudan their employment in the ordinary way seems doubtful. It is difficult to do anything with an enemy that is naturally broken open and does not mind in the least further dispersion. If passed over, a Soudanese seems perfectly prepared to charge his adversary in turn, and is delighted to do so whether there be someone else to help him or not. The cavalry charges were on the whole singularly unproductive of valuable results. Of course they killed a few men, but they produced little moral effect, and lost heavily themselves. The nature of the ground seems to have been such as to break the continuity and, therefore, weight and force of the charge, and there were no large masses even of broken men against which they could be sent. Their true employment would seem to be reconnoitring, in which they could distance any man on foot however fast, or, as they were used at Tamai, to be rapidly transferred to the point of danger and dismounted to use their rifles.

All these suggestions are based on merely theoretical grounds. There can be no wish on the part of any one to find fault with those who have done their duty so well. But it may be reasonably asked why it is that with infinitely better arms than a savage, ill-disciplined, and badly organized enemy, the custom is arising of always employing the formation that is hardest to manoeuvre, most difficult to apply in bad ground, and which in past days was only adopted against rapidly moving cavalry or when troops were ill-disciplined, untrustworthy, or badly armed. The Arabs have altered little for centuries; we, on the other hand, with every modern advantage and improvement, meet them as Cæsar might have done.

The squares used in the Soudan may prove to be the best formation to adopt, but such an opinion may reasonably form the subject of grave and temperate discussion.

Major-General the Hon. W. H. A. FEILDING: It is not at all my desire to criticize the lecture, or indeed any of the operations in the Soudan, but the lecturer referred to a formation as having been suggested in the "Army and Navy Gazette," and I observe that in the diagram a very important part of that formation has been left

out. As it is said that "an ounce of experience is worth a ton of theory," I may say I have been practising with three very untrained battalions, that is to say, one battalion of Militia only out a fortnight, another one only out two months, and a battalion of the Regular Army full of recruits. They were moved over every sort of ground which one could find at Aldershot, and broken up, sometimes moving in fours to the front, sometimes in fours deep. I think, therefore, I may fairly claim that it is not so very difficult to—I cannot say invent—but to apply the formations that we find in the Drill Book to warfare such as we have in the Soudan. I claim for this formation that you get a greater development of fire than by the other ways. There certainly must be less a gap in the rear, because the rear regiment has only one battalion, whereas the front faces of the figure represent twelve companies; but if the gap be left in the centre it is very unlikely that the enemy passing exposed to such a tremendous amount of fire would be able to get right round at any gap so small as represented by the front of two companies. Moreover, the gap could be closed by forming two companies in single rank at that point. The lecturer said it is a parade formation. Doubtless it is so; but only the day before yesterday I took these untrained Militia regiments out over the roughest ground I could find, and advanced with the formation, retired with the formation, advanced by fours, and still found there was no difficulty, and practically no gaps. I do not believe that with ordinary precautions the troops would be so suddenly surprised when they were looking out for an enemy that they had not time to wheel up the six paces, because it is practically only four paces, and then they would be in line. It seems to me that this formation is very mobile, and is very easily learnt. With four drills those regiments were able to move over very difficult ground, and the alarm being given they were immediately in this formation without confusion or delay. I shall be very glad to hear if any Officer has anything to suggest against it.

Lieutenant-General Sir EDWARD HAMLEY, K.C.B.: I have often desired to see this question brought to the test of discussion, for it has appeared to me from the first to be a very serious circumstance that a new mode of fighting should be introduced, which was adopted apparently on insufficient, and I might say almost accidental, grounds, which is opposed to the ideas of a good many of us, and which contains in itself the elements of grave peril and disaster. I have also wished to see it brought to the test of practice in peace, and that has been done, for I have a letter from an unquestionable authority, Sir Frederick Roberts (which I am not at liberty to read, because it is a private letter), who says that with the garrison of Secunderabad he practised this formation, and with the result of arriving at the conclusion that it is a false formation, whether for moving or fighting. But we have something even more than that to go upon, because we have the testimony of eye-witnesses who have been engaged. I have read a letter from a very intelligent Officer who accompanied the march of Stewart's column from Gakdul to the Nile, and he says of the square, "it is a horrible formation to fight in," and he gives his reasons. He says it is a huge target which even bad marksmen can hardly miss, that the shots were dropping into the square, hitting something or somebody throughout the movement. He says that it is so unwieldy with all the transport inside of it, that it is almost impossible to preserve the formation at all. And he gathered some curious facts: in the first place, he said that the square at Abu Klea, although there were a vast number of Arabs present, was only attacked by about 1,500 men, not much more than the numbers of the column itself, and I have not been able to find in any of the records of the battles that any of those squares have ever been attacked by numbers much greater than their own, consequently they have never been put to the severest test. Then he gives other testimony which is not exactly in accordance with that upon which Major King relies, for he says that at Abu Klea the face of the square gave way, that the fragments of it were driven back upon the camels, and the camels on the Guards, and that the force was only saved by the rear rank of the Guards facing about and permitting nothing to pass. These are facts which appear to me, when taken in conjunction with this other fact, that when either the face of the square has been broken, or when the troops have not been able to form square, as in the battle of the 22nd of March, nevertheless they have been able to maintain themselves in

groups against the enemy, to lead to the conclusion that the square formation is not an absolute necessity. Another point which seems to be established is that men and animals have fallen from our own fire. Now, I do not mean to say the question is settled, I do not think it is, for we have not yet had the testimony of any Officers who have been engaged and witnessed the effect of the square, and who still are in favour of it, but it does appear to me that all the facts that have transpired go to confirm the opinions of those who have thought this mode of fighting a very dubious policy.

Lieut.-General Lord CRELMFSORD, G.C.B.: I confess to have been dreadfully disappointed at the last speaker having merely contented himself with knocking over the square formation, without suggesting anything better in its stead. I suppose it really represents what all here to-day must feel, that we have got a question before us which we find almost insoluble. Major Cooper King has come here today, having had plenty of time to prepare his lecture, and possessing that knowledge of tactics and of tactical formations which, of course, the post he so honourably fills has given him. He has to confess, however, that he has been unable to work out, even theoretically, any alternative formation which can be considered really satisfactory. It must then be admitted that those on the spot, who have been engaged in most difficult warfare, with a most formidable enemy, must be considered the best judges as to what was the best formation under the peculiar circumstances of the situation. But I wish to go further now, and criticize some of those suggested substitutes for the square formations. It must be remembered that in fighting the Arabs in the Soudan we have had to deal with men who were just as mobile as cavalry, who were favoured by the ground, and who were able to time and to localize their attack in whatever direction they chose. Each one of these formations, of three small squares in échelon, which the lecturer has shown us on the board, can be attacked in such a manner that two of the squares could not fire without firing into the third. If we have to deal with an enemy who can only attack you in front or from the right or left front, then these formations might all do very well, but when you have to deal with an enemy that can attack you all round, then it seems to me these formations would be very risky indeed. They have also the great disadvantage that if you split up your force into small bodies, your total numbers not being large, you will find it very difficult to know how to dispose of your baggage animals. The whole difficulty really arises from being obliged to have a large number of baggage animals with the force. If, as Major King suggests, these baggage animals can be left in a zareba, no doubt to a certain extent you can get over the difficulty—supposing, however, the main attack is delivered upon the zareba, defended by few men and with a large number of animals inside, for there is always the danger of the enemy recognizing the weak point in your defence, and of his avoiding your strong one; then you may run a good chance of losing all your baggage animals. I do not profess to be able to solve this difficult question, nor do I maintain that the square formation is absolutely the best—what I do contend for is, that until somebody can prove satisfactorily that there is another formation which is better for dealing with an enemy who is able to ignore all the established rules of modern warfare, and can deliver his attack where he pleases, the square, although the most unfavourable formation that troops can possibly be placed in for attack or even for defence, is still at the present moment the best that can be found, and we have no alternative but to make use of it.

Sir E. HAMLEY: Lord Chelmsford said I suggested nothing. I would only advert to the fact that I did not think it necessary to mention that I have already suggested an alternative, which is that of échelon, and to that I adhere.

The CHAIRMAN: Would you be kind enough to give your suggestions now?

Sir E. HAMLEY: It is quite in unison with what General Fielding has said as to the mode of formation, and as an illustration of it you must remember the square at Abu Klea, which was broken, was composed of detachments of various bodies, who had no coherence and no acquaintance with the arm they were using. Eye-witnesses tell us that they poured in a fire which was absolutely ineffective, and that the enemy came up intact to the onset. On the other hand, at Abu Kru, the enemy attacked the face of the square formed by the Guards, and such volleys were delivered as prevented them ever closing at all or coming within some hundred yards.

The deduction we draw from that is that the square is not necessary to the protection of the transport, but that a line formation would in fact inflict more damage on the enemy, and probably prevent them ever closing at all.

Major E. GUNTER : It may seem presumption on my part, after the words that have fallen from Lord Chelmsford, to attempt any solution of this question, but I think it is the duty of every Officer who has thought about it, however humble his position, to endeavour to do so. The lecturer has dwelt at some length on the great efficiency of frontal fire. In regard to this, it may be well perhaps to mention incidentally, that an Officer writing immediately after the battle of Abu Klea, in which he was engaged, said, "If we could only have deployed we should have killed double the number of them." That was after the repulse of their attack. A line formation of some kind is, I think, better on all accounts than a square formation. At the risk of adding to the number of those who have made suggestions, I venture to bring before the meeting an application of échelon, which possibly might help towards the solution of the difficulty. There is nothing very original, I dare say, in any of these ideas. It is a modification, I suppose, of our Drill Book short échelon formation. Each battalion in front line to be formed thus :—Company distance to be kept between the parts of the échelon which are formed of two companies in line (or double companies), each under command of a Major. The necessary impedimenta accompanying the fighting line of the battalion might be protected by the two companies in rear, which would act as a battalion reserve.



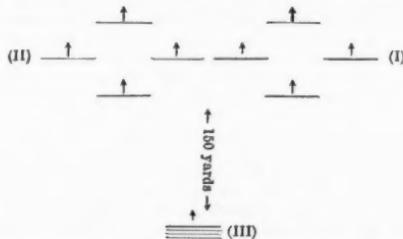
The diagram explains itself. It will be seen to be a simple formation, easily assumed from line or column. It would answer our present arrangement of companies. It would give good frontal fire, while the flanks are strengthened. If it is thought that the flanks are still too weak, each of these flank double companies could form four deep. If attacked in rear the two rear ranks could go about. The executive words of command should not be given by the battalion commander as in square, but by the Officers commanding the échelons, the Majors, the battalion commander directing the whole. In the necessary impedimenta I would certainly include in hot countries water carriage, as it is important a supply should be with the fighting column near at hand. This was recognized by the Turks in the war of 1877, where they had ponies with each company carrying water. In Afghanistan we had company water mules. These mules, with the ammunition mules (or camels), could be with the two rear companies. There is one point which, I think, might perhaps be worth considering in regard to squares. If it is necessary in exceptional cases to form squares, would it not be desirable to have always a small inner reserve. In the case of a battalion even, a small reserve, if only of twenty men, under their own Officer, who would not fire, but watch ready to instantly charge with the bayonet any of the enemy who broke into the square, might be of great use. I think the sudden onslaught of these fresh men would have great effect. I put forward these suggestions with diffidence, as a small contribution to the discussion of the question.¹

¹ I did not like to take up the time of the meeting by going into details. What seems to be required is a formation which shall preserve strength of frontal fire, facilitate movement, and give strength for defence if suddenly attacked while advancing. In this application of échelon it will be seen that each battalion would occupy a front only less by the breadth of one double company than it does in line. The companies in this échelon formation are handy and flexible, can advance over bad ground, and pass over obstacles easier than in line. A brigade of three bat-

Colonel JOHN HILLS, C.B., R.E.: It may be rather presumptuous for me to speak, but it seems that there are one or two little points which have been left out in considering this question. In the first place, when one has to deal with natives, and I have had some fair experience of them, any formation in which you await attack means giving them determination and dash in attacking you, while any formation—it does not matter what it is—that means attack, has the opposite effect. The second point is that in all these fixed formations which have been shown to us the reverse is implied of the fact that the Officer commanding knows his drill, can manœuvre troops, and has had practice in doing so. Now, I see no necessity why a man who is well up in his drill, and is accustomed to manœuvre, should be tied down to any particular formation in offence, and as the attack takes place, he, if he knows his work, ought to be able to meet the counter-attack with the proper formation at the time. That the attack of the Arabs is not so very formidable, though it is always so to a certain extent, I think is more or less proved by what I hear of this last business in the Soudan. I am told that two native regiments (15th Sikhs and 20th Bombay N.I.), when the zareba was rushed, instead of firing a single shot, simply gave a hurrah and charged the Arabs as they made the attack with the bayonet, and they drove them off altogether. The two regiments did not fire a single shot, and yet were able to stem the attack. I think, therefore, that any recognized formation in which you are bound to advance is quite a mistake, but that you are bound to advance and to attack.¹

Major F. S. SHENSTONE: As I am only a Major of Yeomanry, I will not presume to speak on this interesting subject from a military but only from an historical point. In Napoleon's Egyptian Campaign of 1800, he fought the Mamelukes under very similar circumstances to ours against the Arabs in the Soudan, and he impro-

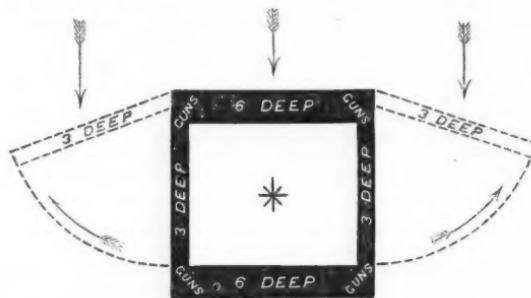
tions might be formed with two like this, and a third as brigade reserve in rear of the centre or of an exposed flank in quarter double column (the bulk of the impedimenta being left behind, as suggested by the lecturer, some little distance in a zareba under a guard), the word being something like this:—"Advance in double échelon from centre of battalions. No. 3 Battalion forming brigade reserve, &c."



In regard to what the lecturer said about the échelon being a dangerous formation in case of careless firing, I do not think any formation would obviate this. Well trained men, well in hand, must be presupposed.

¹ The ordinary methods of advance in more or less open order with the threatened or exposed flank refused, or protected by échelons, and an attack developed by the broadest front and greatest power of fire, is the main object to be attained, and hence the square—the antithesis of such—is the very worst which can possibly be employed in a war against savages against whom the moral effect of an attack was electrical. Colonel Hale's remarks seemed to deprecate any criticism on Commanding Officers, but I inferred that the lecturer in the example mentioned in his lecture meant Wellington at Assaye, a footnote stating so, and perhaps pointing out his remarks on General Moorsom's defeat, and his advice to attack, and his own decision in not awaiting for reinforcements, but at once attacking, would be of value in a footnote.

vised tactics specially adapted for the occasion, and probably different to any ever known before or since. If my memory serves me correctly (for it is many years since I read the account in a French military work) it was in this way: having no base of operations, he placed all his impediments, servants and 200 cavalry, for he had no more, in the centre of a hollow square of about 4,000 men, six ranks deep, and the guns at the angles. As the 12,000 Mamelukes dashed furiously with fanatical frenzy and reckless impetuosity on one face of his square, he wheeled up into line with it the three front ranks of the two outer flanks or side faces of the square, and so trebled the effective power of his line of fire on the enemy. If this manoeuvre was found advantageous when muskets only carried 100 yards, how much more so would it be now, when their range and rapidity of firing is so much greater? I have been surprised that, in all the public correspondence of the past two years on this subject, no reference has ever been made to this original manoeuvre of the greatest military genius of his day.



Colonel MALCOLM GREEN, C.B.: I submit that most of the questions on this point might be answered by the result of the battle of Ahmed Khel, on the 19th April, 1880, when a combination of the most fanatical tribes in Afghanistan assembled to bar the passage of the force under the command of General Sir Donald Stewart on its march from Candahar to Cabul. All the dangerous elements of the late battles in the Soudan were present on this occasion; furious onslaughts by masses of well-armed fanatical tribesmen led by their priests; the usual impedimenta of an Anglo-Indian force, including hundreds of camels and other baggage-animals to be guarded; an isolated position in a hostile country, and nothing but massacre to look forward to in case of defeat. To meet and repel the attack of these hordes, General Stewart appears to have adopted the line formation with the usual supports and reserve, and in his subsequent advance that of a line of columns. That the attack was fiercely driven home is shown by the fact that many of the enemy fell at the muzzles of our field-guns, whilst others were shot down or bayoneted inside the ranks of the infantry. A portion of their horsemen had managed to turn the left flank of the position after a successful encounter with our cavalry, our supports and reserve had been called into action, and very shortly after its commencement everything pointed to a well-contested battle; but after an hour's hard fighting the Afghans, finding they could no longer advance in face of the deadly fire from our rifles, concentrated on them from the long line of infantry assisted by the guns, finally retreated, leaving about 2,000 of their number on the field, while General Stewart resumed his march the same day towards Ghuzni. The only instance during this action of the square formation being utilized seems to have been when the enemy's horse had created some confusion in turning the left and getting to the rear of our line, and the Ghurka regiment on that flank was very properly thrown into company squares, and, therefore, whilst in that position, greatly assisted in checking the further advance of the cavalry, whilst a threatened attack on the

baggage was repulsed by the fire of a heavy battery in support of the left flank. Our fighting line numbered about 1,800 infantry, and 700 cavalry, and 12 horse artillery and field-guns, with a heavy battery; the Afghans are computed at 12,000 men. In reading the graphic account of the battle by Captain Elias, 59th Regiment, in No. CVII, 1880, of the Journal of this Institution, I cannot imagine a better illustration of the value of the line formation of infantry when properly handled and ably supported by the other arms, and I earnestly draw the attention of those interested to the paper above quoted.

Lord CHELMSFORD: Was not the baggage all in the rear out of the fight altogether?

Colonel M. GREEN: The baggage was, I believe, in sight in the rear, and an attempt on it by the Afghan cavalry is reported to have been repulsed by the heavy battery placed in support of our left.

Lord CHELMSFORD: The troops were quite unencumbered, with no baggage whatever?

Colonel M. GREEN: If our force had been beaten back they would have had to look after their own baggage, in the meantime its protection had to be provided for.

The CHAIRMAN: There was a brigade in rear specially in charge of the baggage?

Colonel M. GREEN: The 1st Brigade, I understand, were 3 miles in rear of the 2nd Brigade, the baggage of the latter being under its own guard during the action.

Major GUNTER: The baggage was some distance in rear protected by a brigade. We had with us only the first regimental reserve small-arm ammunition on mules, the water mules, and some company intrenching tools carried on mules.

Lord CHELMSFORD: Perhaps I might be allowed to supplement my remarks on that point. I do not for one moment wish to maintain that the line formation is not by far the best for fighting; but what I contend for is that when a force is hampered with baggage it is then bound to form a square for its protection. In the instance referred to, the troops were fortunately unencumbered with army baggage, which was in the rear, and they were consequently able to fight in a formation which enabled them to deliver their fire to the best advantage.

Major TOVEY: May I ask Major King, when he makes his reply, to tell us whether he has studied the proceedings of the Russians in their campaign in Central Asia? They have there had very much the same circumstances to deal with with regard to water and baggage as we have in the Soudan. They adopted, I believe, the square formation for their camps and marches, but I never remember hearing of their using the square as a fighting formation against the Turcomans.

Colonel CLIVE, Gren.-Gds.: I am obliged to Major Cooper King for the manner in which he has brought this subject before us, i.e., in a spirit of inquiry, and I am obliged to Sir Edward Hamley and other speakers who have alluded to the late campaign in Egypt, and especially to the battle of Abu Klea. Their information with regard to the battle tallies entirely with that which I have received from the Upper Nile about the breaking of the square at the left corner. Many of the letters that I have seen written at Gabat, after Abu Klea, have led me to the belief that nothing but the coolness of the Guards Camel Corps formed in the centre saved that square; and that, humanly speaking, if the Guards Camel Corps had not stood fast, we should not have seen a single man of that square return to this country. But, turning to the point before us for discussion, namely, square formations *versus* line formations, the main point to be considered is, are you going to act offensively or defensively? If defensively, the square is no doubt a proper one in which to stand fast and receive the attack of the enemy. But if you are going to advance and manoeuvre, then I hold that the square formation has grave inconveniences; partly from the difficulty of suiting the rate of advance to the pace of the transport animals inside; and partly because you throw away the advantage conferred by the range and accuracy of the rifles. If when we meet an uncivilized enemy armed with a few rifles, a certain number of spears and doubled-handed swords, we are prepared to say, "Our enemy attacks with such rapidity and bravery, that really we must form square, and sacrifice the advantage that we get from our

rifles," then, I should say, this is a faulty principle, and I should oppose the square formation. Of course if the bush be so dense that you do not know from what point of the compass the enemy will attack, as at Ulundi, in Zululand, it is quite possible that you cannot move on a large front, and, therefore, line formation would be inapplicable; but assuming that you can obtain a certain field of fire, say 100, 150, or 200 yards in front of your men, I think there is no question that we shall fight safest in our old line formations; and I believe that with our arms and our men, line formations will always suffice to beat off any troops armed like these Arabs; and I think that the first General Officer in the field who reverts to line formation will confer a great benefit on the British Army, and will achieve a great success. If I am obliged to suggest a formation for a brigade of three battalions in attack, I should propose to have the leading battalion in line, the next in two half battalions on the flanks in échelon, and the third battalion in quarter column on the rear face ready to form into square if necessary, as reserve in case the enemy did break in somewhere through the front or round the flanks. I strongly hold that the thing to do is to trust to our Officers, and to give greater power to individual energy and common sense to adopt any formation whatever that may suit the enemy, his tactics, and the nature of the country we are fighting in.

Colonel LONSDALE HALE: Sir, in the remarks which you made before the lecturer commenced you deprecated the introduction of any personal questions, and so far as possible I will endeavour to carry out your wishes; but listening to the views put forward by the lecturer and those gentlemen who have taken part in the discussion, and noticing the approbation with which those views were received, I find that the condemnation of the square formation is unanimous and universal, and I am driven, therefore, to the sad conclusion that the Generals who adopted it were from a tactical point of view, not personally of course, "muffs." It follows that if anybody here in this theatre who has taken part in this discussion had been out in the Soudan or elsewhere, he would not have been such a "muff," he would have adopted a formation which was other than that which has been described by a writer in "Blackwood" as "unintelligent," and by an Officer who was there as "horrible." But the extent of the area over which this "muffism," if I may so call it, has prevailed is very remarkable. It has existed in South Africa, it has existed in the Western Soudan, and in the Eastern Soudan, and also among the French in Algeria; that you find it in both the Eastern and Western Soudan is well worthy of special notice. Sir Herbert Stewart was present when the square formation was adopted in the Eastern Soudan. He saw there all its defects and all its advantages. He himself had passed many years in the infantry, and he was also a cavalry Officer. He had the steadiness of the one and the dash of the other, and yet this Officer, when he gets into independent command, adopts the same identical formation. I have so often in my teaching career been accustomed to hear Officers try to prove that Von Moltke was not so much of a man, that Napoleon was rather a fool on some occasions, and the Duke of Wellington nothing at all, that I am never surprised at any criticism, however harsh it may be, upon Generals. But I always bear in mind a word of advice given by that most distinguished soldier, Verdy du Vernois, who in one of his invaluable books is portraying and explaining a situation in which a General did something apparently utterly absurd and ridiculous. General Verdy du Vernois is behind the scenes, he lifts up the curtain and he explains to you the reasons and the motives which actuated the General, and what appeared to an outsider absurd and ridiculous, turns out to be absolutely correct, and we acknowledge the fact as soon as we have learnt what those motives were. Therefore this debate has a something of unreality about it. We are discussing what Generals have done and the Generals are not here to lift the curtain and show us why it was done; and they are the only persons who can do so. General Graham would tell us that we were here, but unfortunately, in the Western Soudan the curtain has fallen and never will be raised, therefore we cannot tell what led General Stewart to adopt that formation. A good deal has been said about échelon formation, and General Feilding has shown us also an échelon formation which I dare say he may remember is one which was, I believe, used in the warfare in Algeria. That formation which was used in Algeria was very much like

the formation on the top corner of the diagram. There the troops move in échelon, with troops in rear of the centre échelon and the baggage in the centre. Taking considerable interest in the question, and not being able to understand why we did not adopt that particular formation in the Soudan, if it had succeeded in Algeria, I took it to a French Officer who had seen this formation employed in Algeria, and he said, "Yes, that is exactly the formation that we adopted, it is the best formation for marching and fighting." I said, "Would you have adopted it in the Soudan?" "Ah!" he said, "I cannot tell you that, the men that you are fighting in the Soudan are utterly and entirely different from the men we fought in Algeria. You have got in the Soudan men that we had not in Algeria; we had no ham-stringing of camels, no people rushing in as they do there, and moreover we always knew where the enemy was, and we could adopt that open formation because from the circumstances of the case we always had timely warning of the attack." Gentlemen, this discussion and this lecture have no doubt been very interesting, and will be read with very great interest by our friends on the Nile. I dare say even a number of the "Journal" will be light reading to while away the sultry hours there, but at the same time, when our comrades read it, I am afraid their criticism, though it will doubtless be good-tempered, will be also something of the character of a stanza that I recollect hearing in my infancy, which in conclusion I will venture to paraphrase to you:—

" You warriors who at Whitehall Yard,
Talk tactics at your ease,
'Tis not so easy as you think
To fight the Soudanese."

The CHAIRMAN: We are very much obliged to Major Cooper King for the interesting lecture he has given us, and though he does not profess to have found a complete recipe for the disease, he has yet, I think, thrown some light upon it. I would first of all speak a little of my own experience. In my youth, when I was a Lieutenant, commanding a company, I had considerable experience of fighting with savages, and in a very difficult country. We had a good deal of hard work, and those savages occasionally gave us some very good lessons by which we profited, because we were far better hands at that sort of warfare at the end than we were at the beginning. But those savages were not to be compared to the Soudanese, or even to the Zulus that Lord Chelmsford fought against, but they were people that he also knows, the Amaxosa Kaffirs, very fine fellows in their way. The disparity between us and them was not then as great in one respect as it is now between our people and the Soudanese, for they were nearly as well armed as we were. In those days we had Brown Bess, not an arm of precision, and they were armed with Birmingham muskets of some sort or other which fired about as well as our own. They also had assegais, but almost every man we encountered had also a musket of some sort or other. They used those muskets very well because they did not fire at long ranges, they waited till you were pretty close to them and gave it you very sharp. However, they did not think of coming to close quarters like the Soudanese or the Zulus, except at the beginning of the war, when they did rush in a bit, but they soon got tired of that. There was one very curious feature in our way of fighting them of which I am reminded by this question about squares. At the beginning of the Kaffir War, in which I was engaged, an Officer invented a system which went by the name of his "box," he was a distinguished Officer, and it was called "So and So's Box." We had to march long convoys through a dense bush, we were holding a certain number of forts in the Amatola mountains which we had to supply with provisions periodically, we had to take large convoys, extending sometimes a mile or two miles, of big Cape wagons over very rough tracks, through all sorts of deep ravines, rivers and so forth, the whole country being covered with dense forests. The box was formed as follows: a certain number of companies in skirmishing order were extended in front of this convoy; a certain number on each flank of it marching in file, while the remainder brought up the rear, thus forming a huge hollow square which made its way as well as it could through the dense bush, sheltering the convoy. Soon after we landed in this country I had the

pleasure to skirmish in one of these boxes with my company, and we very soon got all higgledy-piggledy in the bush. We did not know where we were or where our neighbours were, and the whole thing got into confusion, which was, I believe, the rule and not the exception. The "box" system was persevered in for some time, because there was a dread of letting the Kaffirs in upon the convoy, but the Kaffirs used to creep in at times all the same. Then, a bold and skilful commander, Colonel (afterwards General Sir William) Eyre, took to quite a different system. He treated his troops with much more confidence and used his companies independently, sending detachments forward to occupy difficult ground which they held till the convoy had passed through, following it afterwards as rear-guard, and throughout the operations which he conducted, he acted on the system of using his troops in skirmishing order, and by companies, with unvarying success. I cannot help thinking that the same general principle is applicable to the present warfare even against such a foe as the Soudanese, that considering the enormous superiority of our arms in the present day we ought to break up our units more than we do at present. I quite see the necessity for having a solid formation to protect your impedimenta; for even in savage warfare, you cannot avoid carrying a great quantity of impedimenta with you; first of all you must have means of transport for all your wounded and even for your dead, because you do not like to leave even your dead on the ground in that sort of warfare, at least I know we did not in Kaffirland; we always carried about our dead with us. Then as one speaker mentioned, you must carry water, and you must have your reserves of ammunition and food. So that I think, even if you leave for a time the greater part of your impedimenta in a zareba, as was wisely done in the Soudan on more than one occasion, yet you still would have a great quantity of things to carry about with you, and you must have some solid formation to protect them, and whether this formation marches at once in square, or in column till required to form square, it has practically the defects and advantages of a square. It has been admitted by the lecturer that nothing but the square formation was suitable to a small force such as General Stewart had with him, and I think it has been pointed out that it would have been even better if skirmishers had not been used, because when they ran in they helped perhaps to throw the square into confusion. But speaking of a larger force, say of three or four battalions, my idea is this: I should like to have one battalion in square, or marching in column ready to form square, as a sort of *reduit* for the whole force, and to contain the impedimenta. I should like to use the remainder of the force, or as much of it as I required, by double companies. I think that if we had a series of double companies spread along our front and flanks whenever required—I am supposing that we are taking the offensive; of course if you are reduced to the defensive there is the square formation to resort to, and if you have plenty of field for fire there cannot be a better formation to cover your impedimenta, and at the same time to enable you to hold your own against very superior numbers. If, however, you are taking the offensive, you might break up the greater part of your force into a series of double companies, arranged as follows: I would have (see diagram, Fig. 12) one of each of these pairs of companies acting in open line more or less extended according to the force and armament of the enemy; I would have the second of each of these pairs of companies marching a little behind, not very far, acting as a support to the first company, and ready in case of any rush of these gallant Soudanese to close upon it and then turn about, forming a sort of oblong or rather oval. Then in a moment, after they had repelled the enemy, as no doubt they would do, just as those Berkshire men did in that action of March last, they could re-form either a line of skirmishers or open line as required. If the enemy retired, the rear companies could move upon the front companies, and you would have your line more or less extended, but I think the great object in the offensive movements should be to have as many comparatively small units as you could, handled each by its Captain or Major. I think with that system your troops would move with much greater confidence, and would do much more than when boxed up in solid formation. I think if this practice of relying entirely on the solid formation were continued, it would be very demoralizing to our armies. Then there is another thing we have to consider with regard to these savage enemies, even they will not remain just as they

are now. Already in this short campaign in the Soudan we have seen a change in their tactics, they have got to shoot more, and every day they will shoot more and better than they have done. If we had by some misfortune to fight those fellows again, we should find they would have more firearms and would use them more than they have before, and that would at once do away with the possibility of a dense formation ; we should have then of necessity to come very much more to the formations in use against civilized armies. We must look to the future. Now that they have once tasted the rifle-fire, and have known the advantage of using it, they will not adhere to the same system of tactics as before. Gentlemen, I will not take up your time any longer. Of course there is an immense deal more to be said. We have all had our own little say as to our specific, but it is not much of a specific after all. I am afraid that we cannot come to any definite conclusion. Colonel Hale, always the great wag here, introduced a great deal of humour into the discussion, and I call to mind that concluding stanza of his, after which I have nothing to do but to sit down.¹

Major COOPER KING : I have not very much to say in reply to the discussion this afternoon. I am very glad to hear the criticisms that have been offered, but I think, on the whole, the conclusions have come very much round to those which I stated, that is to say, most people have advocated either line or the extension of the front of fire. General Feilding certainly does so by his formation of échelons with power to form square. Sir Edward Hamley prefers large échelons to line. Lord Chelmsford adheres to the square, but I think we all agree that under the exceptional circumstances of the Zulu war, especially with the particular tactical formation of the enemy, nothing else was to be done. The tactics were enveloping and assailing, and in order to meet that attack the square was best. Major Gunter again advocates the extension of the line of fire, and he gives something like the same formation as General Feilding. Major Shenstone referred to the Napoleonic square at the Pyramids, in which the further extension of front is produced by bringing out a portion of the flanks, all pointing to what I have been saying that the tendency is to produce a greater front of fire. I do not quite know how, but I think we are coming round more or less either to a formation in échelon, or a species of line. Colonel Clive lays it down that the square is best for pure defensive, and line for attacking tactics. Certainly the battle of Kerbekan was the most satisfactory of all the Soudan battles. It was fought with more reasonable odds, and the position was carried ; the enemy did charge and was beaten off by fire, and I think the result of that battle is worth noticing. Colonel Lonsdale Hale offers no suggestion particularly with regard to formations. He says that our criticisms are sure to be criticized. To that none of us can have any objection, and I hope to hear them criticized when Officers return from the Soudan. Sir Lumley Graham advocates a series of smaller units on a wide front, again suggesting a wide front of fire. That is to say, the bulk of the speakers come round more or less to this, that we shall have a linear formation of some sort, or else short échelons. I offered

¹ One of the speakers asked for information as to the tactical formations used by the Russians in Central Asia against the Turcomans, who are very stubborn fighters behind intrenchments and in night attacks, but apparently not so formidable as the Soudanese in the open. No information was given. Since the lecture, however, I have read in the "Revue Militaire de l'Étranger" (No. 624), an extract from the late General Skobeleff's orders to the force preparing to attack Géok Tépé, a translation of which will, I think, be found interesting. "On open ground, the valiant Téké cavalry, mounted as they are on fast horses and skilled in the use of the sword, will always be dangerous to long and open lines, but infantry in close order, composed of vigorous men who are brave and well trained to the use of their arms, will gain the day when coming to close quarters. *It must be admitted as a fundamental principle in Central Asia that formations in close order are all-powerful.*" With reference to the foregoing, it is well to bear in mind that the defenders of Géok Tépé were not much better provided with firearms than the Soudanese, it being estimated that out of 30,000 fighting men only 5,000 had guns of any description, of which not more than 600 were breech-loaders.

that as a suggestion at the end of my lecture. I do not think we have got much further on, but the whole consensus of opinion seems in favour of linear formation in preference to a simple square. At the same time, we must all admit that where you get cases like General Stewart's, the small square is unavoidable; or where you get the Zulu tactics, the square is unavoidable so long as the numbers of the enemy are preponderating. I am very grateful to have heard so much criticism as I have done, and also to have had the opportunity of discussing this question in this Institution.

The CHAIRMAN: Nothing remains for me except to move that the thanks of his meeting be given to Major Cooper King for his very valuable lecture.

Wednesday, June 24, 1885.

ADMIRAL SIR GEORGE O. WILLES, K.C.B., in the Chair.

NOTES ON THE LAST GREAT NAVAL WAR.

By J. K. LAUGHTON, M.A., R.N., Lecturer on Naval History at the Royal Naval College.

I HAVE been invited by the Council to bring before you this afternoon some notes on our last Great Naval War, the war of the French Revolution and Empire. In doing so, I am not going to attempt a necessarily imperfect repetition of the history with which you are all more or less familiar; nor yet to dwell on certain little-known episodes, interesting in themselves, but after all only episodes. I purpose rather in the short time at my disposal to call your attention to some points in naval tactics, or the general conduct of naval war, which have a present and ever living importance.

I know indeed that there is a disposition to scout the study of history as little better than an idle amusement. In Parliament especially, I notice it is the fashion to jeer at any disagreeable reference to past events as "ancient history." I want, then, at the very beginning, to enter a protest against the doctrine so implied. According to Professor Freeman, modern history begins with the earliest mention of an Aryan race—the siege of Troy, perhaps; and for my own part, I know of no period in naval history which does not carry valuable lessons to those who will study it.

And if every period can give its own teaching, then most certainly will a critical examination of the great war which raged almost without intermission from 1793 to 1815, amply repay the labour which may be bestowed upon it. But by a critical examination, I mean a good deal more than the mere recital of tales of blood and thunder, of brilliant adventure or splendid achievement, such, for example, as that of the "Spartan" in Naples Bay, of which our Chairman's name irresistibly reminds us. All these you have read for yourselves. I dare-say you have read the rest, too; but it is not always quite so lively or exciting, and may not have taken such fast hold of your memories. I believe that in this way very erroneous ideas are sometimes formed; in much the same way, in fact, as the short-sighted hero of one of Edgar Poe's stories fell desperately in love with his great-great-grandmother.

I am, for instance, not quite sure that our very brilliant successes during this great war have not left an impression in the country, and even in our Service, that the English sailor or the English naval Officer is something very superior to the sailor or naval Officer of any other nation. There are many whose knowledge of naval history is entirely confined to this period, and who think, not unnaturally, that the glorious actions of which they read, happened quite in due course. This is a very incorrect view of the state of the case. Of the hundred years preceding the outbreak of the French Revolution, thirty-five were years of war with France; but in all that time we only won two decisive victories at sea, over fairly equal forces: these were Quiberon Bay, in 1759, and Dominica, in 1782. Every other battle against the French—of those, I mean, in which the forces were fairly equal—was drawn; sometimes in our favour, sometimes not in our favour; but always without any decisive tactical result, though the strategical result was sometimes extremely important.

Now these two great victories to which I have referred, were won by very marked tactical superiority. It is not within my purpose this afternoon to discuss the claims of Hawke and Rodney to be considered as great tactical masters: I myself think they were; amongst the greatest: but at any rate, there is no question that at the critical moment they showed themselves immeasurably superior to Conflans or De Grasse. In other battles we had not that tactical superiority, and we did not gain victories. Many of our most distinguished Officers were unable to realize any superiority but that of numbers. You are probably acquainted with Captain Jervis's (Lord St. Vincent's) astounding statement of opinion in 1778, "that two fleets of equal force never can produce decisive events, unless they are equally determined to fight it out, or the Commander-in-Chief of one of them misconducts his line."¹ A similar opinion, still more strongly expressed by Sir Clowdisley Shovell, in 1702, is probably new to you:—

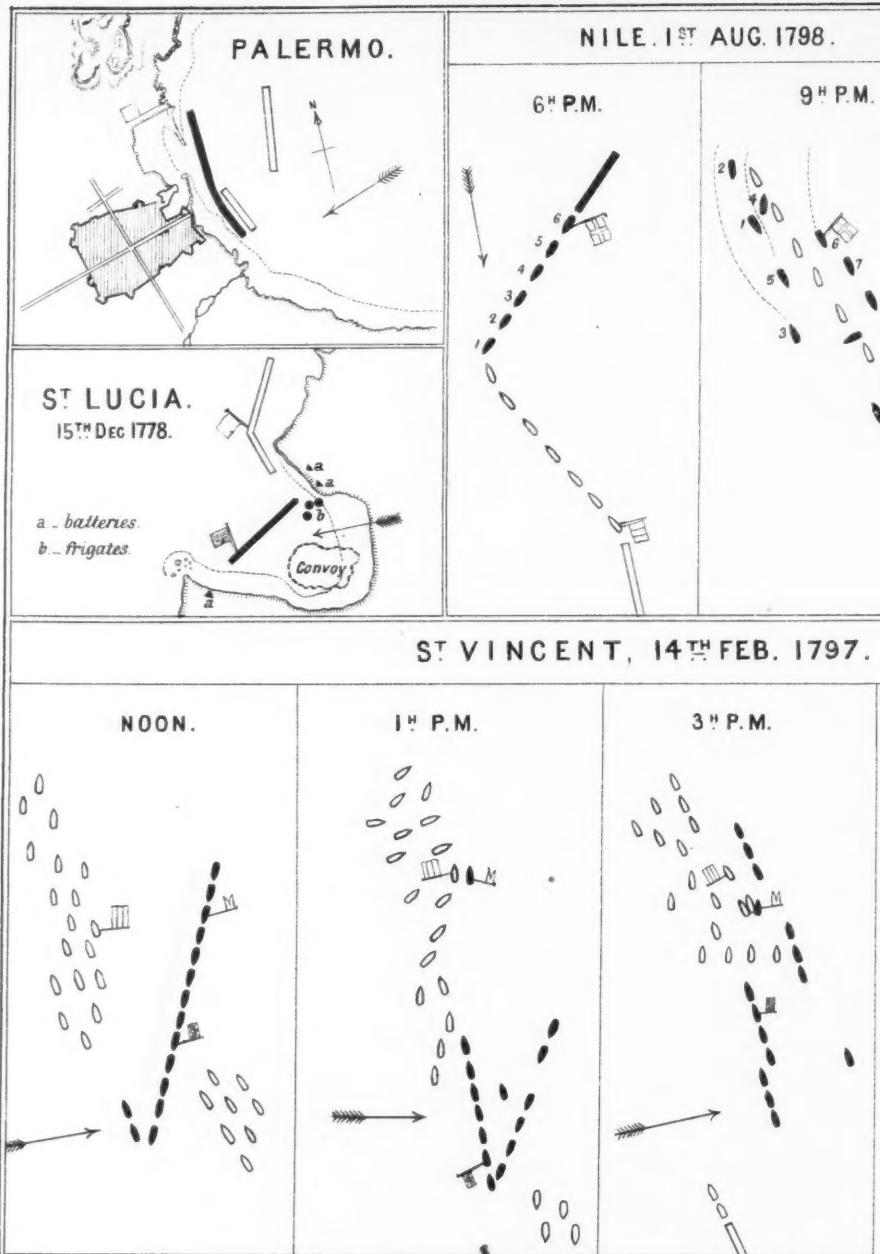
"The misfortune and vice of our country is to believe ourselves better than other men; which I take to be the reason, that generally we send too small a force to execute our designs. But experience has taught me that where men are equally inured and disciplined in war, 'tis, without a miracle, number that gains the victory; for both in fleets, squadrons, and single ships, of near equal force, by that time one is beaten and ready to retreat, the other is also beaten and glad the enemy has left him. To fight, beat and chase an enemy, I have sometimes seen, but have rarely seen at sea any victory worth boasting where the strength has been near equal."²

I have read you these quotations in order to bring prominently before you the very remarkable fact that, at different ends of the 18th century, men like Sir Clowdisley Shovell and Lord St. Vincent had absolutely no idea of any possible tactical superiority; even though, in the interim, Sir George Byng had bodily captured the whole Spanish Fleet, of no very unequal force, off Cape Passaro, with such ease that he was said "rather to have made a seizure than to have gotten a victory;" and Hawke, in a manner no less decisive, had crushed the French in Quiberon Bay. It appears that Jervis, and most

¹ Brenton's "Life of Earl St. Vincent," vol. i, p. 59.

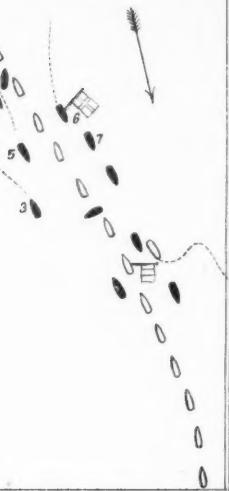
² Sir C. Shovell to the Earl of Nottingham, 18th July, 1702.

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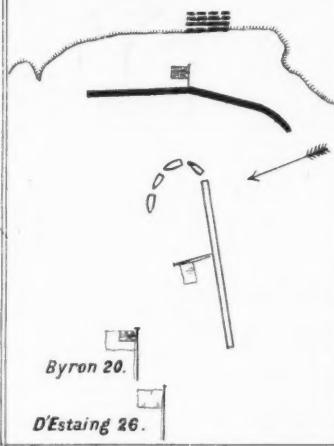
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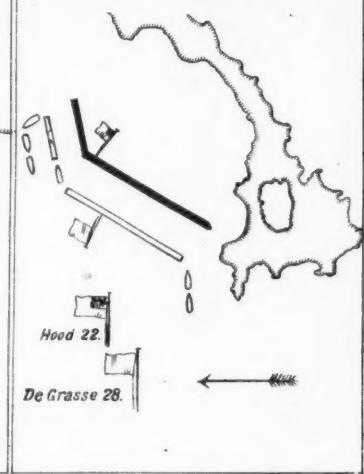
BASSETERRE ROADS.

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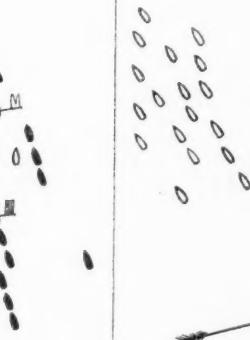
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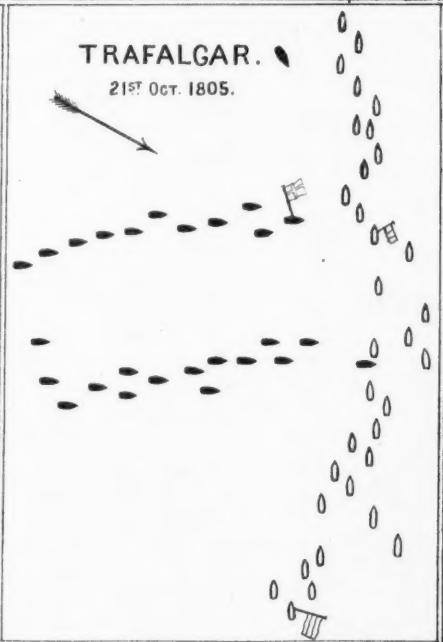
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of his contemporaries, saw nothing in these brilliant successes, beyond a happy accident, or misconduct on the part of the enemy's Commander-in-Chief; it needed Rodney's harder fought and less overwhelming victory to convince them, and the Navy at large, that there really was such a possibility as tactical superiority, irrespective of superiority of numbers. I am not sure that Jervis ever fully realized it. I quite recognize the enormous value of what Jervis actually did; but, heretic though I may seem to many of you, I do not think he ranks high as a tactician; the battle of Cape St. Vincent does not seem to me a tactical masterpiece. It was, in fact, a battle between a small fleet, strong in the absolute perfection of its discipline and seamanship, and a large fleet, utterly wanting in both. Attention has often been called to the compactness and regularity of the English line, to the straggling confusion of the Spanish fleet; but I do not think the gross ignorance and total absence of discipline amongst the Spaniards has been sufficiently emphasized. I will therefore quote a few sentences from Colonel Drinkwater-Bethune's little book, which is, I fear, not so familiarly known as it ought to be:—

"Their [the Spanish] fleet appeared to be most indifferently manned; the flagships had not more than sixty or eighty seamen on board, the remainder of their crews consisting of pressed landsmen and soldiers of their new levies. . . . An Officer of one of the prizes said, that on board the ship in which he served, it was impossible, after the first broadside, for the Captain or Officers to persuade any of the crew to go aloft to repair the injured rigging; threats and punishment were equally ineffectual. He had seen some severe examples made for disobedience of orders, but though two or three had been killed and several wounded, these severities had no effect. The panic-struck wretches, when called upon to go aloft, fell immediately on their knees, and in that posture cried out that they preferred being sacrificed on the spot to performing a duty in the execution of which they considered death as inevitable. On board the 'San Josef,' when the British sailors had taken possession, it was remarked that four or five tompions were still fixed in the quarterdeck guns of the side that had been engaged. . . . The people on board said . . . that the animated and destructive cannonade of the British ships had not allowed them to fire these guns."¹

I need not, I think, speak, on the other hand, of the very remarkable, the unexampled state of efficiency in which (thanks to the severe training and discipline of Sir John Jervis) the English fleet was. But it is this extreme difference between the two, this enormous superiority of the English fleet over the Spanish, notwithstanding the great numerical disparity—a superiority of which, I may remind you, the English were well aware—it is this superiority which seems to suggest, now, when we can critically consider the story of the action, that much, very much more might have been done, had Jervis been as pre-eminent as a tactician as he was as a disciplinarian and organizer, and in all the other duties of Commander-in-Chief. Of course, both at the time and since, men's minds have been dazzled by the mere numbers. For fifteen ships to inflict a decisive defeat on twenty-seven does seem to speak for itself, and the political results in England accentuated the impression. Still, from a tactical point

¹ A Narrative of the Battle of St. Vincent (2nd Edit., 1840), pp. 51-3.

of view, I can picture to myself even grander possibilities ; and, not to dwell on these, I would submit that in not making the "Captain's" recall when she broke out of the line, or in not signalling the "Diadem" and "Excellent" to support her, the Commander-in-Chief showed a want of quick decision which might easily enough have proved fatal.¹ We had had Admirals—Hawke, for instance—who, in such a juncture, would, I think, have made the general signal for chase. Even the old "Fighting Instructions" permitted it; for the enemy was certainly "put to the run." I know it is commonly said that the "Excellent" did follow at once without signal, and did support the "Captain." In point of fact, it was two hours before she got near the "Captain."

The utter want of discipline and training amongst the Spaniards was no new evil. At different times during the century—and especially during the war of American Independence—they had shown a curious incompetency to keep their Navy in an efficient state. They continued to build ships—exceedingly fine ships, some of them—but their men—who 300 and even 200 years before had been the most venturesome of navigators—had lost almost every quality of seamen, except mere courage; and the decadence of their Navy, the utter collapse of their naval power is a striking and extreme proof of the fact that courage alone will not make an effective fighting force.

With France it was not so. The Officers and men of the French Navy had been thoroughly efficient. Their Officers in the higher ranks were, as a rule, more theoretical than ours: we used to say that they were not so practical; but some of them were certainly very dangerous enemies. De Guichen, for instance, both as a tactician and a seaman, must be counted in the first class. There is no prettier chapter in naval history than the account of his month's campaign against Rodney in April and May, 1780; and, independent of his conduct on that occasion, we know that he got his fleet, wretchedly officered and manned when he left France, into such order, and manœuvred it so ably, that the English explained it by saying that he had a large number of American sailors. In point of fact, it does not appear that he had any.² Suffren is another whose reputation, in both capacities, stands even higher than Guichen's. La Motte Picquet, De Grasse, D'Orvilliers were all able men, though not indeed of the same calibre as the former: and under these, during the war of American Independence, there must have been trained scores, I might say hundreds, of thoroughly capable Officers. They had, too, at that time a very good and efficient body of seamen gunners; and of the great number of men that they had afloat in 1783, a large proportion must have been still effective in 1794. And yet we know that, in 1794, the French fleets were badly officered, badly manned, and their gunnery was almost contemptible.

¹ The accompanying diagrams of this and other actions referred to, are to be understood as merely rough indications. They have no pretension to strict accuracy of detail.

² Chevalier, "Histoire de la Marine Française pendant la Guerre de l'Indépendance Américaine," p. 184. Beaton, "Naval and Military Memoirs," vol. v, p. 65.

The fact is that the French, when on the point of declaring war against us, adopted the precautionary measure of beheading as many of their Officers as they could catch, and drafting their seamen gunners into the Army. The crews, deprived of their Officers and infected with the republican dogma that each man is rather better than his neighbour, were insubordinate or mutinous, and were broken up. It is difficult to arrive at any numerical statement of their ships' companies; but the "Qa Ira," which was captured in the action off Toulon (14th March, 1795), had a crew of 187 sailors and 496 soldiers,¹ besides a large body of supernumerary soldiers, to the number, as stated by Nelson, of 1,300.

The results were, as we know, disastrous to them. The battle of the 1st of June, 1794, was one of these results. Ten years earlier, an English fleet attacking as our fleet did on that day, would have been dismantled almost before it fired a shot. I do not for a moment suppose that Howe would have attempted it. As it was, the battle was won simply by forcing the fighting; by intercepting the early retreat of the French, and so compelling them to fight it out. It was the first time an English Admiral showed he had discovered the secret of the French defensive tactics which had so often thwarted our efforts: but still, theoretically, he had no tactical advantage. The English ships were in better order, cleaner, and more healthy: they were individually more efficient; and by that individual efficiency the battle was won. Camperdown was of the same order. Neither Howe nor Duncan seems to me to have grasped the one ruling principle of all tactical success—that of establishing a local superiority at some point of the battlefield, and so beating the enemy in detail. It was no new principle; but of all the Admirals of this period, Nelson was the only one who realized the importance of it.

The first action in which Nelson commanded-in-chief was the Nile, and that, tactically speaking, was, I think, his masterpiece. The position was a familiar one, and had been well studied. We all know that Bonaparte and his creatures attempted to throw the whole blame of the catastrophe on Brueys, and on his reckless want of judgment in lying at anchor in Aboukir Bay, where the English fleet might be expected; and ever since, French writers have been fond of discussing what he ought to have done when the English appeared.

A common idea seems to be that Brueys remained at anchor only because he was convinced that the action would not begin that night, and that he fully intended to weigh before daybreak. I have no hesitation in saying that this idea has sprung solely out of the result of the battle, and that it never entered Brueys's head. I think I can prove this statement: and, as it seems to me an important point in the history of tactics, I will ask you to bear with me while I do so.

It is on distinct evidence that the Officers of the French Navy were systematically taught that a squadron carefully anchored in shore—and more especially if the ends of the line were supported by bat-

¹ "Guerres Maritimes de la France, Port de Toulon," par V. Brun; tom. ii, p. 267.

teries—was virtually unassailable, even by a fleet of enormously superior force. It is difficult to say how such a theory grew into being; but what I state is certain fact, acted on at least eight or ten times during the war of American Independence. I will enumerate some of them.

Howe at Sandy Hook: D'Estaing refused to attack.

Barrington at the Cul de Sac of St. Lucia: D'Estaing did attack and was beaten off. There is a very good picture of this action in the Painted Hall.

Byron at Basseterre of St. Kitt's: D'Estaing did not venture to attack.

Rodney in Gros Islet Bay of St. Lucia: Guichen, having thirty-six ships against seventeen, remained at Fort Royal of Martinique.

Hood at St. Kitt's: De Grasse attacked and was beaten off. Of this action also, there is a picture in the Painted Hall.

Darby in Torbay: the allied fleet under Cordova and Guichen did not attack.

There were many other instances: but I have mentioned sufficient to establish the fact. In all these cases the French were in overwhelmingly superior force, but in two only did they venture on an attack, and in those two they were beaten off, and by the ships alone. At St. Kitt's there were absolutely no batteries. At St. Lucia a few guns had been landed from the frigates, but they do not seem to have taken any important share in the action. After the first repulse, Suffren, who commanded one of the ships, the "Fantasque," is said to have implored D'Estaing to go in and anchor on the enemy's buoys: he would so be able to crush them by his superior force, and the batteries would be neutralized. As he had twelve large ships against seven small ones, mostly of fifty or sixty-four guns, it is impossible to doubt that Barrington would have been in a very awkward position if D'Estaing could have mustered resolution to follow Suffren's advice: with such odds in his favour he had nothing to do but go in and win; but this is just what the unwritten law of French tactics absolutely forbade.

But again, when in June, 1794, Lord Hood, with an enormously superior force, chased Martin into Golfe Jouan, he did not attack. He did indeed give out a plan; but contrary winds prevented its being carried out; and before they changed, the French had so strengthened their position that the attempt could not be made.

We know now that Hood had meant to attack in Golfe Jouan; we know that in 1782 he had meant to attack De Grasse at St. Kitt's; but the French did not know it then; and as he had not done so, they naturally assumed that the English doctrine was on this point the same as their own. I have, therefore, no doubt whatever that, having anchored his fleet in line, and having placed batteries on what was afterwards known as Nelson's Island, Brueys believed that he had taken all proper precautions, and was perfectly secure even against a much stronger fleet than his own: whilst Nelson's fleet, of which he probably had fairly exact intelligence, was distinctly inferior in numerical force.

Now, I wish to call your attention to what seems to me, historically speaking, a very interesting point. Nelson, in command of the "Agamemnon," was in the fleet with Hood when it chased Martin: and, though he was sent away back to Bastia, we know from his despatches that he was perfectly well acquainted with what was going on at Golfe Jouan. It is impossible to doubt that, being on the friendly terms with Lord Hood that he certainly was, he had often talked over that cruise with Hood, and was familiar with his views on the subject. In such conversations the projected attack on De Grasse, in 1782, must have been mentioned and discussed; and as the French refusals to attack a squadron anchored in line had been repeated several times in the West Indies, when both Hood and Nelson were on the station, I think we are justified in supposing that the subject was pretty well threshed out between them. This is, of course, only inference: but I submit that it is a fair and legitimate inference; nor do I conceive that I am in the slightest degree detracting from the honour of Nelson by showing that he was, to some extent, an immediate pupil of Lord Hood.

But though, in the end of the 18th century, the French had persuaded themselves of the almost absolute safety of a fleet anchored in line along shore, their forefathers had known better, both by what they had done and by what they had suffered. At Palermo, on the 2nd June, 1676, the French fleet under the nominal command of the Duke de Vivonne, and under the effective command of Tourville, who was his Chief of the Staff, had destroyed the Hispano-Dutch fleet by tactics essentially similar to those of Nelson in the Bay of Aboukir: and that the brilliant precedent should have been so utterly forgotten seems to me one of the most astounding cases of ignorance on record. But when the French forgot their great victory at Palermo little more than a hundred years before, it was not to be supposed that they could remember their overwhelming defeat at Sluys four centuries and a half before. But the battle of Sluys was, in principle, the precursor of the battle of the Nile; and, as I am addressing you on the anniversary of that great victory, won on 24th June, 1340, I will pause a few moments to speak of it.

In the ordinary school histories, the battle of Sluys, if mentioned at all, is referred to, almost casually, as an event of little importance, and worthy of notice only as the first of England's naval victories; a poor thing, they seem to say, but our own. Nothing can be more erroneous. It was certainly not the first of our great victories; for—not to go farther back—the battle off the North Foreland, in 1217, was the still bloodier precursor and analogue of Cape Passaro and Quiberon Bay. Nor was it a poor thing, an event of little importance. On the contrary, it was one of the biggest, if not the biggest and bloodiest of mediæval battles; and its result led up to and permitted the invasion of France a few years later, and the much talked of battle of Crécy, which, in comparison, was a mere skirmish.

So much in honour of the anniversary. What is, just at present, more to our purpose, is the very remarkable fact that in 1340, in the so-called Dark Ages, when tactics—naval tactics at any rate

—were supposed to be unknown, this great victory at Sluys was won by the application of the same tactical principle which triumphed at the Nile. If it was mere chance which led King Edward III, or his son the Black Prince, always to do the right thing at the right time, and always, at sea or on shore, to crush and utterly destroy his enemies, all I have to say is that such chance is at least as good as any study of the art of war. I don't for one moment believe it. I believe that Edward III, as his son after him, had a comprehensive grasp of tactical principles. Detailed accounts of his battles are sadly wanting; but even of Sluys we have sufficient to enable us to understand that he manoeuvred to bring his line obliquely across the right wing of the French line and to smash it. It is the old, old story; not so sweet perhaps as another version of it which we may see portrayed on the walls of the Academy; but it is equally true. It was told to the Persians at Salamis, it was told to the French at Sluys, it was told to them again at the Nile.

I ought not, perhaps, to leave the battle of the Nile without saying a few words about the claim which has been put forward on behalf of Captain, afterwards Admiral Sir Thomas Foley. The claim seems to be substantiated by perfectly trustworthy evidence; and yet, on the other hand, we have Sir Edward Berry's distinct statement that—

"There was no possible position in which they [the enemy] could be found that he [the Commander-in-Chief] did not take into his calculation, and for the most advantageous attack of which he had not digested and arranged the best possible disposition of the force which he commanded. With the masterly ideas of their Admiral, therefore, on the subject of naval tactics, every one of the Captains of his squadron was most thoroughly acquainted; and upon surveying the situation of the enemy, they could ascertain with precision what were the ideas and intentions of their Commander, without the aid of any further instructions. . . . It is almost unnecessary to explain his projected mode of attack at anchor, as that was minutely and precisely executed in the action. These plans, however, were formed two months before an opportunity presented itself of executing any of them; and the advantage now was that they were familiar to the understanding of every Captain in the fleet."

The explanation of what appears to be a contradiction is, I think, that Nelson, whilst taking care that the several Captains thoroughly understood the spirit and general meaning of his plan, left them a very considerable latitude in matters of detail. No one supposes that Berry's statement implies that it was ordered beforehand that the leading ship's anchor was to hang, and the second ship was to take her place; that the third ship was to make the sweep that the "Orion" did, and smash up the frigate; that the fourth ship was to pass through between the first and second of the French line; or that some were to anchor by the stern and some by the head. But taken literally, Berry's words "minutely and precisely executed" mean all this and a great deal more. I think, then, that what Berry meant to say was that it was definitely ordered that the ships were to take up such position as was most suitable; that they were to get into it in the best and quickest way they could, and to anchor by the head or the stern, as seemed best at the moment; that all the contingencies had been considered, and it was left to the Captain of each ship to go

inside or outside, round the end of the line or through it, just as he saw his opportunity. In that sense, no doubt, Foley did take a certain initiative; and his saying so afterwards may very well have been misunderstood, and have led to claims being made for him which he would never have made for himself.

For I think there can be no doubt that the possible advantage of going inside had not been overlooked—could not have been overlooked. In that respect Berry's language is explicit; but besides that, we know that it was said—I believe truly—that in De Grasse's fleet off Dominica in 1782, the French, in clearing for action, merely moved the mess gear and even the cattle to the other side—the larboard side of the decks; and that when their line was broken, and they were engaged on the larboard side, they suffered terrible loss in consequence. Nelson was in command of a ship on the West India Station at the time; it is quite impossible that he had not heard the circumstance spoken of, and that, knowing the conservatism of human nature, he had not speculated on the possibility of their making the same mistake again; as indeed they did. But I submit to you that the signals made that the Admiral intended to attack the van and centre, and to form line as most convenient—the mere fact that no line of battle was given out—are of themselves sufficient to show that within the prescribed limits a wide discretion was entrusted to the individual Captains.

I fear I must pass over Trafalgar in a very few words; but there are one or two little points on which there is, I believe, some misconception, and on which I will therefore dwell for a moment.

The first is a sentence in the celebrated Memo. of the 9th October, 1805, which is very commonly misquoted, and, separated from its context, misapplied. After having laid down in some detail the general plan of attack from the position to leeward, Nelson added a save-all clause, which may be understood as applying equally to what follows, relative to the attack from to windward. It is this: "Captains are to look to their particular line as their rallying point. But in case signals can neither be seen or perfectly understood, no Captain can do very wrong if he places his ship alongside that of an enemy." I think I may assume that every one here has frequently heard the last line of this sentence, with the omission of the word *very*, quoted as a complete sentence, embodying the whole essence of Nelson's tactics. Nothing can be more erroneous; it is opposed to everything that Nelson wrote, and is contradicted by everything that Nelson did.

Another point about which, I think, there is some confusion is the fact that the "Royal Sovereign" broke into the enemy's line some twenty minutes or more before the "Victory." There appears to be an idea that there was a sort of race between the two lines, and that the lee line won. I therefore refer you again to the Memo., where you will find that the instruction is for the lee line "to set all their sails, even steering sails, in order to get as quickly as possible to the enemy's line and to cut through, beginning from the twelfth ship from the enemy's rear. . . . The remainder of the enemy's fleet are to

be left to the management of the Commander-in-Chief, who will endeavour to take care that the movements of the second in command are as little interrupted as is possible." You must bear in mind that Nelson had already twice spoken of the probability of the enemy's van coming round to succour their rear; and also that between the 9th October, when this Memo. was issued, and the 21st October, when the battle was fought, he was in almost daily communication not only with Collingwood, but with all the Captains of the fleet. We know, from the correspondence of Collingwood and others, that he was in the habit, in such conversation, of entering more fully into the discussion of possibilities.

"I am under the impression"—wrote Sir Edward Codrington some years afterwards—"that I was expressly instructed by Lord Nelson . . . that he himself would probably make a feint of attacking their van in order to prevent or retard it. I have no doubt of the 'Victory' having hauled out to port for a short space, and of my calling the attention of my First Lieutenant, Croft, to the circumstance of her having taken her larboard and weather studding-sails in, whilst she kept her starboard and lee studding-sails set and shaking, in order to make it clear to the fleet that his movement was merely a feint, and that the 'Victory' would speedily resume her course, and fulfil his intention of cutting through at the centre. In admiration of this movement I observed to Lieutenant Croft, 'How beautifully the Admiral is carrying into effect his intentions!' and it was this exposure to the raking fire of several of the ships ahead of the French centre that occasioned the 'Victory' being so much cut up before she reached her proposed position."¹

A clear and explicit statement such as this, by a responsible eyewitness, as Sir Edward Codrington was, more especially when corroborated by Nelson's own written words, seems to me perfectly conclusive, and is assuredly not to be contradicted by the imbecile twaddle and galley yarns which have found their way into our histories.

These points, of themselves, perhaps, of little consequence, are made important by the inference which has been drawn from a misunderstanding of them. I have myself met with Officers who, deducing their ideas from some very second-hand source, have maintained that anything like a scientific system of naval tactics is out of the question; and have supported their position by a reference to these very details of which I have been speaking. Get into action, anyhow, as quickly as possible, and clap your ship alongside an enemy's. That, I have been told, is the whole essence of Nelson's teaching and practice. If I can do nothing else this afternoon but demonstrate the absolute falsity of that pernicious error, I conceive that, even so, I shall have rendered good service to the State.

Having once begun to speak of Nelson, it is difficult to stop; but the limit of time compels me. I will therefore only add that I cannot conceive any study more useful to the naval Officer than that of Nelson's life; not as watered down for the general reader by Southey, whose book, as it seems to me, is by no means deserving of its reputation; but as embodied in his "Letters and Despatches," that grand monument to our hero's memory, which we owe to the loving industry of Sir Harris Nicolas. This is the book which ought to be to every

¹ Nelson's Despatches, vol. vii, p. 154 n.

naval Officer as the Bible is to the Christian, or as Shakespeare to the man of letters. I fear it is not. I fear a great many of our Officers are inclined rather to say, or at any rate to think:—Nelson was, no doubt, a very fine fellow in his way, but it was a poor way after all. He knew nothing of steam; he never heard of torpedoes. What we have to study now is the application of these; not the obsolete tactics of sailing-ships. Do not, I beseech you, be led away by any such sophistry. Let me impress on you that the art of war, like other sciences, is based on fixed principles which never become obsolete; which are the same now as they were 3,000 years ago; and that the exact history of any great Commander, the exact detail of any great battle by sea or by land, of any glorious victory or terrible disaster, whether of our own time or of any other time, is, to the careful student, full of matter for deep and earnest reflection.

I must now pass on to speak of some points in the conduct of the war which are both interesting and important; and I may premise that there was, at the beginning, in England, and indeed in Europe, a strong feeling that the French, by their excesses, had cut themselves off from any share in the decrees of international law and the milder usages of modern civilization. It was not only that they had murdered their King and Queen, and as many of their gentlemen and gentle-women as they could lay hands on, together with vast numbers of humbler folk; it was not only that they seemed to have gone mad with excesses of blood and cruelty, but that they had passed a decree that no quarter should be given to any English or Hanoverian soldier.

"War to the death"—roared Barère—"against every English soldier. What is this moral pestilence which has introduced into our armies false ideas of humanity? It is only the dead man who never comes back. Humanity consists in exterminating our enemies. Soldiers of liberty, when victory places Englishmen at your mercy, strike! None of them must return to the servile soil of Great Britain; none must pollute the free soil of France."

All this was bad enough in mere words; when it came to be translated into deeds, it was insupportable. On one occasion at least, it was so translated. On the 13th August, 1794, a pitiful little merchant brig named the "Peggy," in ballast, was captured by the frigate "Boudeuse," of the Toulon squadron. The "Peggy" was sunk, and her crew of eleven men shot, in cold blood, on the quarter-deck of the "Boudeuse." It is a French official who tells the story, which we otherwise might have difficulty in believing.¹ I do not think it was known in England, nor indeed could it be; for the poor "Peggy's" were all wiped out, and the French were probably too much ashamed of themselves, or afraid of the consequences, to speak of it, especially after the "9 Thermidor."

But though these barbarities were unknown, there was no conceal-

¹ "Guerres Maritimes de la France, Port de Toulon," par. V. Brun; tom. ii, p. 261. M. Brun attempts to excuse the butchery as a retaliation for the massacre of the crew of the "Modeste" frigate, captured in Genoa on the 5th October, 1793. The statement is absolutely false: the loss of the "Modeste," with a complement of 275, is given as one killed and eight wounded.

ment about the savage way in which they attempted to wage war. Red-hot shot they certainly tried to use on board their ships, though their only known effect was the destruction of the "Alcide" in Hotham's second action off Toulon.¹ Inflammable composition and carcasses they also had; though these, too, proved fatal only to themselves, if, as was reported, the burning of the "Orient" was caused by them.

There was thus, I think, from the very first a sort of loathing of the enemy, as of something unclean; a sort of feeling that—

"—though the beast of game
The privilege of chase may claim;
Though space and law the stag we lend,
Ere hound we slip, or bow we bend,
Who ever recked where, how or when,
The prowling fox was trapped or slain?"

I believe that some such feeling was strong in the fleet; I believe it was still stronger in England, and that so far as the rules and customs of international law could be strained, there was every disposition to strain them; and I think I am right in attributing to that disposition the instructions issued to English cruisers, on 8th June, 1793, authorizing them "to detain all vessels laden with corn, flour, or meal, bound to any port in France, and to send them into a British port, in order to subject the cargoes to the right of pre-emption." Still earlier it had been agreed by all the Powers then allied against France—Russia, Prussia, Austria, and Spain, as well as England—

"reciprocally to shut their ports against French ships, and not to permit the exportation from those ports to France of any military or naval stores, corn, grain, salt meat, or other provisions, and to take all other measures in their power for injuring the commerce of France, and for bringing her by such means to just conditions of peace. They also engaged 'to unite all their efforts to prevent, on this occasion of common concern to every civilized State, other Powers not implicated in the war from giving, in consequence of their neutrality, any protection whatever, directly or indirectly, to the commerce or property of the French, on the sea, or in the ports of France.'²

The measures adopted, and especially the instructions of 8th June, 1793, were almost admittedly irregular; but it was hoped that by the numbers and power of the consenting parties, neutrals would be cowed into waiving what they might consider their rights, or perhaps not discover the injury till the effect was achieved.

"The Courts of London, St. Petersburg, and Berlin made representations to those of Stockholm and Copenhagen, justifying the measures adopted by the belligerent Powers upon the ground of the extraordinary character of the war, which authorized a deviation from the ordinary maxims of international law. In the note presented by the British Minister at Copenhagen, it was also stated that the only effectual means of reducing the enemy to just conditions of peace was to prevent his being relieved from that state of famine to which he had reduced him-

¹ "Guerres Maritimes," tom. ii, p. 277. Nelson (*Despatches*, vol. ii, p. 51) says the "Alcide" caught fire from a box of combustibles in the fore top; but Brun, with better opportunities of knowing, is positive as to the shot furnace. Possibly there were both.

² Wheaton, "History of the Law of Nations" (1845), p. 372.

self by arming the whole population of France against Europe: that it was a principle universally recognized that provisions might become contraband when there were hopes of reducing the enemy by famine: still more might they be so regarded when the distress of the enemy was occasioned by the unprecedented measures he had adopted to carry on a war of a character equally unprecedented, and which menaced the safety of the whole civilized world."¹

The Danes were unwilling to admit this claim of the belligerents to put a stop to innocent traffic; but yielded, partly, to the representations of the allies that in view of the anarchical proclamations of France, "those nations whom circumstances did not permit to take an open part in the contest, were bound to contribute by such means as were in their power, by the interdiction of all commercial intercourse with the disturbers of the public repose, and especially the exportation of provisions and naval stores;" and still more, probably, to the formal announcement by the Russian Minister at Copenhagen, on 10th August, 1793, "that the Empress had equipped a fleet to cruise in the Baltic and North Seas, in order to intercept the navigation and commerce of the French rebels . . . with orders to seize all vessels under the French flag, and to detain and turn back all neutral vessels bound to the ports of France."

Sweden also yielded at the time, but a few months later (27th March, 1794) entered into an agreement with Denmark for the mutual protection of their trade. The only effective voice, however, which was raised against the instruction of 8th June, 1793, was that of the United States, whose Government maintained that innocent trade could not legally be stopped in this way; and that "corn, flour, and meal had never been included in an acknowledged list of contraband." The difficulty led to the negotiation of a Treaty of Commerce and Navigation (19th November, 1794, and ratified 28th October, 1795), which, without absolutely settling the question, left any points that might arise out of it to be adjudged by a mixed Commission.

Previous to the signing of this Treaty, the instruction of 8th June, 1793, had been annulled; it was, however, again issued in almost the same terms, in April, 1795, and several captures were made, which were afterwards, as provided, referred to the Commissioners; and, on their decision, compensation was paid to the owners.

I have dwelt on this case at some length, as showing in a very clear manner the state of the law even ninety years ago. If the wholesale proclamation of provisions as contraband was held to be illegal and a violation of the rights of neutrals in 1795, though it was alleged, on apparently valid grounds, that by so doing a pressure would be brought on the enemy, which would compel them to come to terms—much more is such a proclamation illegal and a violation of the rights of neutrals in 1885. And if at that time, with a powerful Navy and an European coalition to support her, England was compelled to yield to the exposition of justice, much more may we believe that such a claim at the present time, by any other nation, is absolutely untenable.

¹ Wheaton, "History of the Law of Nations" (1845), p. 375.

I am not speaking only with reference to the recent action of France in China, against which, as we have been informed, a proper protest was made by Lord Granville. The war happily came to an end, and the precedent can scarcely be cited one way or the other. But it is well we should bear in mind that some similar action on the part of a possible enemy has been held out as a rod in pickle for ourselves, if we should ever again venture to go to war. I do not think either the rod, or the pickle, is much to be feared. As to the rod, we have been able to take pretty good care of ourselves for many hundred years; and I know of nothing that shows me we are not as well able to do so now as ever before. As to the pickle, that is the neutrals' business. If, ninety years ago, the United States would not stand any such step from us, we may be quite sure that now they would make matters very unpleasant for any nation that again attempted it: and I think I am only speaking common sense when I say that any country in Europe which was engaged in a maritime war with England would think a good many more than even three times, before it needlessly added the United States to the list of its enemies.

It must, however, be understood, that we are not to depend for our existence on the possibilities of neutral diplomacy. It is our duty to defend ourselves against all risks, let enemies or neutrals do what they please. Now there seems to be a prevailing idea, I will not say in the Service, but in the country, that the larger merchant ships ought to be able to defend themselves. I read a few weeks ago in the "Saturday Review":—

"There is no reason why the 'America' and her consorts should not do good service, such as was done by the armed East Indiamen in the great war. Those vessels were not expected to fight line-of-battle ships, or even the heaviest class of frigates, though an unprotected convoy did defeat a French squadron, including a liner, on one famous occasion; but they were a match for any privateer and the lighter kind of men-of-war."

This point is one whose importance it is difficult to overrate, and I propose, therefore, to dwell on it for a few minutes.

The reference to the "unprotected convoy" defeating a French squadron is of course readily understood; but it conveys, perhaps, a rather false impression; for there was no serious fighting. It was an affair as creditable to Commodore Dance as it was the opposite to M. Linois, whom the French have spoken of as the rival of Nelson; but it was the victory of a stout heart over a timid judgment, rather than of a few merchant ships over a line-of-battle ship and two large frigates besides a couple of smaller vessels. In mere fighting power, there could, I think, be scarcely a comparison. Still, the extraordinary fact remains, that this superior squadron of ships of war was really and truly put to flight by the semblance of a line of battle of big merchant ships. It is not, however, a thing that we can calculate on as likely to happen again; and when the writer from whom I have quoted goes on to speak of the armed East Indiamen as "a match for any privateer or the lighter kind of men-of-war," he is contradicted by the facts of history. They may, perhaps,

have beaten off privateers sometimes; for privateers were of all sizes and armaments, and, occasionally, were very hollow shams. It may, however, be as well to say that the story told in "Newton Forster" is not historically true; but what is historically true is that Surcouf, with not more than twenty-five men, in a pilot brig, which he had possessed himself of, did, in broad daylight, October, 1795, capture the Company's ship "Triton," of 800 tons, mounting twenty-six 12-pounders on a main deck, and having on board 150 men; and that the same man, in the "Confiance" of 26 guns and about 130 men, did in open fight capture the Company's ship "Kent," on the 7th October, 1800.¹

Surcouf was, undoubtedly, an exceptional man; but I question very much if any of the Company's ships of that day were really a match for large privateers such as Surcouf commanded, or such as the French have always been in the habit of sending to sea. We must not forget that however big the merchant ship may be, or whatever armament she may carry, she is encumbered with merchandise, her men are not thoroughly drilled, are insufficient in number, and are comparatively undisciplined. It is a mere question of force. I can conceive our larger merchant ships beating off the smallest class of cruisers, whether privateers or men-of-war; but I doubt very much their being able to contend successfully against cruisers of any moderate size.

As to the ownership of the cruisers, that has nothing to do with it, except, of course, that a commissioned man-of-war is likely to be stronger than a privateer. But we have no business to count, as I fear we do count, on any enemy we may have not employing privateers. We have indeed been fully warned, by at least two possible enemies, France and Russia, that the Declaration of Paris is binding only so long as it suits their convenience or advantage. I take it that such agreements as the Declaration of Paris or the Neutrality of the Suez Canal, would be, in time of war, worth exactly the paper they are written on, and not a penny more, except so far as they are supported by efficient and sufficient force. That is the only trustworthy guarantee; and even within these last few days we have had direct proof of the ease with which, by seeming accident, the neutrality of the Canal might be set aside. To trust our vital interests to the good faith of any foreign nation has not been the custom of this country, and ought not to become so, so long as we have hands and hearts of our own. And, in war at least, contrary to Mr. Bright's celebrated dictum, force is the sovereign remedy.

There is another point closely bearing on this part of my subject, on which a few words will not, I hope, be considered out of place.

We have all heard a great deal, of late years, of the quickness with which, in case of war, the English flag is to disappear from the sea. Within a month—or it may be six; six at the very outside—not a merchant ship, I hear it said, will be afloat flying the English ensign. Everyone will have been transferred to a neutral flag. It may be so.

¹ For a full account of Surcouf's remarkable career, I may refer to "Colburn's United Service Magazine," February and March, 1883.

It will be for the shipowners of the future—for aught we know in no very distant future—to choose what ensign is more beautiful, more glorious, or, taken all in all, more safe. But it is for me now to state to you the facts of history. For this transfer of ships to a neutral flag is not a new idea. Human nature is curiously constant, and men form very much the same projects now that they did ninety years ago. Ninety years ago it was the French who had this idea. A great many of their ships were transferred to a neutral flag; the flag, very often, of some petty German State. There was a house in Emden which did quite a wholesale business in the way of buying up French merchant ships; but Americans and Danes also appear to have engaged in it. Our cruisers picked up a considerable number of ships so transferred, and brought them in; when—and this is the point to which I call your attention—they were very commonly condemned. Not always. I suppose there were some that got off. But Sir William Scott, in pronouncing judgment on the "Bermon" (19th December, 1798),¹ a ship asserted to have been purchased by an American in France during the war, said:—

"Such purchases have been allowed to be legal, but they will always be obnoxious to much suspicion; the Court will always feel it to be its duty to look into them with great jealousy, and it will do this strictly, even in purchases made under commission for neutrals resident in their own country. But the suspicion will be still farther increased, and the Court will exert its utmost power of research, where it appears that the pretended neutral purchaser was a person then resident in France, for the Court cannot be ignorant of the necessity which the French have felt of covering their trade, nor of the system of collusion practised for that purpose; but still greater suspicion will arise if the ship so purchased immediately engages in the commerce of France, and continues in the hands of French proprietors."

The "Bermon" had, in fact, been captured on her voyage from Bordeaux to Hamburg, laden with wine.

From this and numerous other decisions, it would, I believe, be held that though a ship, belonging to a belligerent, might legally be bought by a neutral, the sale would be considered extremely and probably fatally suspicious if that ship were found continuing the trade of her former owners. If, for instance, English provision ships went through the form of sale to a neutral, and were afterwards met with by the enemy carrying provisions to an English port, they would certainly, according to Lord Stowell's decisions, be condemned, quite irrespective of any pretension to hold provisions as contraband of war, a pretension which, as I have shown, cannot be maintained, but which may, not impossibly, be put forward in a manner that will cause a good deal of annoyance.

The decisions of which I have been speaking are matters of absolute fact. They have been maintained in actual war. But I think we ought to bear in mind that a great deal of what now passes as international law, such as may be read, for instance, in the pages of Bluntschli, is little more than the crude fancy of diplomats or publicists. It is mere theory, and has not been subjected to the strain

¹ Robinson's "Reports," vol. i, p. 102.

of reality. Whether it would hold or not is a question. It has never yet been the custom of man to make war with rose-leaves.

Now, a great stress is frequently laid on the armed neutralities, without perhaps examining their history with sufficient closeness, not only from a legal, but from a naval point of view. It seems to me quite possible to exaggerate their importance.

So long as Russia continued a party to the general alliance against France, Sweden and Denmark were the only neutral maritime Powers in Europe; and though several attempts were made, by Sweden more especially, to extend the rights of neutrals, they could not, and did not, meet with any success. In one instance only did they attain even a legal importance. In January, 1798, a large fleet of merchant ships, laden with tar, hemp, and other naval stores for the French ports in the Mediterranean, and sailing under convoy of a Swedish frigate, was bodily captured, brought in, and condemned, as having offered resistance to lawful search.¹ The resistance was exceedingly slight, scarcely more than nominal; but the instructions both to frigate and convoy were plain.

"Removing mere civility of expression"—said Sir William Scott, in pronouncing judgment—"what is the real import of these instructions? Neither more nor less than this, according to my apprehension, 'If you meet with the cruisers of the belligerent States, and they express an intention of visiting and searching the merchant ships, you are to talk them out of their purpose if you can, and if you can't, you are to fight them out of it.' That is the plain English, and I presume the plain Swedish of the matter."

When then it was pleaded that the intention was never carried into act, Sir William Scott's decision was:—

"If the intention was voluntarily and clearly abandoned, an intention so abandoned, or even a slight hesitation about it, would not constitute a violation of right. But how stands the fact in the present case? The intention gives way, so far as it does give way, only to a superior force. It is for those who give such instructions to recollect that the averment of an abandonment of intention cannot possibly be set up, because the instructions are delivered to persons who are bound to obey them, and who have no authority to vary. The intention is necessarily unchangeable."

In the following year (25th July, 1800), a similar case occurred with regard to a Danish convoy, with the aggravation that the frigate in charge (the "Freya") not only intended to resist, but did resist, and yielded only after a sharp engagement. Satisfaction was demanded by the Danish Minister in London, and refused by the British Government, which insisted that it was entitled to an atonement for the unprovoked aggression, by which the lives of British seamen had been sacrificed and the honour of its flag insulted almost within sight of the shores of Great Britain. A special embassy was sent to Copenhagen, and in the course of the following month (29th August, 1800), an agreement was entered into, by which, on the one side, the frigate and convoy were restored, and on the other, the Danish Government engaged not to grant convoy until the question received a definite settlement.

¹ Robinson's "Report of the Judgment on the Swedish Convoy," 11th June, 1799.

It was thus that about the close of 1800 the feeling, both in Denmark and Sweden, was unfriendly towards England; and it was just at this time that the Emperor of Russia broke off his alliance with England, and placed an embargo on all English ships. Amongst Powers united by a kindred sentiment of hostility towards England, an armed neutrality almost naturally resulted; and accordingly, in December, 1800, the second armed neutrality was signed, on very much the same bases as the first armed neutrality of 1780. As the two are thus closely related, as the second undoubtedly sprang out of the first, a few words as to its origin seem called for, more especially as that origin was not diplomatic foresight, or statesmanlike acumen, but a mere vulgar intrigue, and a struggle between two Russian noblemen.

"It sprung"—says Wheaton—"from no enlarged and beneficent views of improvement in the maritime law of nations hitherto sanctioned by general practice. It was the accidental result of a mere Court intrigue, and of the rivalry between two candidates for the favour of a dissolute, ambitious, and vain-glorious woman. Catherine herself had a very imperfect idea of the immense importance of the measure she had adopted, and of the effects it might produce. So ignorant was she of commerce, that she flattered herself with having at once vindicated her own honour, and shown her strong regard for Great Britain."¹

Legally, no doubt, the armed neutrality of 1780 has a peculiar importance, as marking the first recognition by all the States of Europe, England alone excepted, of the principles enunciated in its declaration. Historically, on the other hand, I think its importance has been much overrated; for Catherine, without whose active participation none of the neutrals were able to do anything, was in no way inclined to act hostilely towards Great Britain, and indeed told Sir James Harris that, as far as she was concerned, the whole thing was an armed nullity. It was not only that she was really friendly towards us, and perhaps also a little nettled by the thought that she had been played on—like Hamlet's fife—by Panin, but that she was practically powerless; for a great number of the Officers of her Navy, and especially in the higher ranks, were British subjects, and her Navy, such as it was, was thus not available for a war against Great Britain.

In the face of Europe, too, the alliance was discredited at the outset, by its refusing to succour and support Holland in her war with England. Holland was indeed not entitled to any such support, for war was actually declared by England some days before Holland became a signatory to the Treaty; and the causes of war were altogether independent of the objects of the neutral alliance. Still the European public did not quite understand this; to them it appeared that the "armed neutrality" was unable or unwilling to give armed effect to its declaration, or to afford to one of its signatories the aid stipulated for in case of hostile aggression; and it thus became, in fact, as the Empress had already called it, an "armed nullity."

The armed neutrality of 1800 aimed at being something more definite, the provisions in the alliance being, in brief:—

¹ Wheaton, "History of the Law of Nations," p. 298.

1. Free navigation of neutral vessels.
2. Free ships, free goods, excepting contraband of war.
3. A blockade must be effective ; there must be "an evident danger in attempting to enter." Vessels attempting to enter are not liable to capture, unless they attempt a second time after having been warned off.
4. Neutral vessels not to be detained without just cause.
5. Neutral vessels under convoy of a ship of war not liable to search. The declaration of the Officers of the ships of war to be considered sufficient.

In addition to which, provision was made for a joint armament for the protection of neutral commerce, and for their mutual defence in case any of the signatories should be attacked on account of this Treaty.

By reason of her former engagement with England not to send convoy with merchant ships, Denmark was still hesitating about the ratification of the Treaty, when England, by Order in Council of 14th January, 1801, laid an embargo on all Russian, Swedish, and Danish vessels. Denmark's answer was a public declaration of her adherence to the armed neutrality. Now in 1801 England was in no humour to negotiate away the strongholds and safeguards of her maritime power. She struck at once ; and the English guns at Copenhagen, the presence of the English fleet in the Baltic, completely crushed the life out of the armed neutrality, to which the death of the Emperor Paul (24th March) had given a fatal blow, and a Convention between England and Russia, signed on the 17th June, 1801, finally put an end. In this Convention England conceded the right of free navigation ; neutral ships were not to be stopped but upon just causes and evident facts, and blockade to be binding must be effective. On the other hand, enemy's goods in a free ship were still held liable to seizure ; and the right of searching merchant vessels, even under the convoy of a ship of war, was maintained, but only by a State's ship. On 23rd October, 1801, Denmark acceded to this Treaty, as did Sweden, on 30th March, 1802.

It has always appeared to me that publicists lay more stress even on this second armed neutrality than it is entitled to. No doubt it marked the current of public opinion on several moot points of international law ; but it was not backed up by the material force necessary to maintain it. In time of war, men's minds are not in the humour to listen to or accept abstract reasonings as to the rights of those who are not in a state to enforce them ; and the pretensions of the Baltic Powers to dictate a maritime code were little better than absurd.

Scarcely less absurd, it seems to me, was the claim made by Russia in 1807, that the Baltic was *mare clausum*, a sea into which warlike operations could not enter. It was not, as in 1780 or 1800, merely an assertion of the neutrality of the Baltic. That could be understood ; but for one of many countries whose dominions border on such a sea to put forward a pretension to the inviolability of the coast of a neighbour in time of war, is preposterous. For Russia to make it in

1807 was absurd; nor indeed is it conceivable that she would have made it except at the demand of France, as the corollary to the Peace of Tilsit. And it was as such that it was answered :—

"His Majesty,"—said the English counter-declaration of the 9th December,— "feels himself under no obligation to offer any atonement or apology to the Emperor of Russia for the expedition against Copenhagen. It is not for those who were parties to the secret arrangements of Tilsit to demand satisfaction for a measure to which those arrangements gave rise, and by which one of the objects of them has been happily defeated. . . . The inviolability of the Baltic Sea, and the reciprocal guarantees said to have been contracted with the knowledge of the British Government, are stated as aggravations of His Majesty's proceedings in the Baltic. It cannot be intended to represent His Majesty as having at any time acquiesced in the principles upon which the inviolability of the Baltic is maintained, however His Majesty may, at particular periods, have forborne, for special reasons influencing his conduct at the time, to act in contradiction to them. Such forbearance never could have applied but to a state of peace and real neutrality in the north; and His Majesty most assuredly could not be expected to recur to it after France has been suffered to establish herself in undisputed sovereignty along the whole coast of the Baltic Sea, from Dantzig to Lübeck."¹

The question was, however, one of words. English ships of war went into the Baltic whenever they wanted; against them the Russian Baltic fleet was powerless; and the Russian Mediterranean fleet, in endeavouring to escape back to the Baltic, was driven into the Tagus, where, in accordance with the terms of the Convention of Cintra, it surrendered to Sir Charles Cotton, and was convoyed to England. The Officers and crews were treated with diplomatic courtesy, and sent back to Russia; and five years later, the ships also were returned.

There are many other points on which I could have wished to speak, if only to invite you to consider them for yourselves; but the clock warns me that I must not trespass longer on your patience. I should have especially liked to say something about the causes which led to the American War in 1812, and of the events of that war. As time will not permit me, I will only bring to your notice a little book of great merit, lately published in America, and which is probably still new to many of you: "The Naval War of 1812," by Theodore Roosevelt. Though with an American colouring, it is written with a fairness and judgment which make it contrast most favourably with all former histories, whether English or American.

I will venture also to bring to your knowledge a curious fact which seems to explain some of the contradictory allegations made so positively on both sides. James, as you know, maintains that a very large proportion of the American ships' companies were Englishmen. Roosevelt seems to prove—I think does prove—that the presence of an Englishman amongst them was quite exceptional. The fact, which writers on both sides seem to have lost sight of when considering this question, is that during the twenty years of the war an enormous number of Americans served in the English Navy, and were, as against France or all the rest of the world, very decent Englishmen. When war broke out with the States, those who had not already gone back

¹ "Annual Register," vol. xlix, p. 772.

to America at once resumed their nationality, and surrendered as prisoners of war. There were upwards of a hundred that so gave themselves up in the East Indian squadron alone. What the numbers were in the larger fleets at home, in the Mediterranean, or in the West Indies, I have not been able to ascertain; but they were doubtless very considerable. It is thus not to be wondered at that our men recognized old shipmates amongst the Americans, or that the American guns were occasionally christened after distinguished English Commanders.

I should have liked also to have said something about the mutiny, or rather, the mutinies; not only the great wave of mutiny which swept over the Service in every part of the world, in 1797, but the many very serious mutinies which broke out at other times. This would have led me into the very wide question of discipline, of impressment and other kindred topics, which the hour now permits me only to refer to. If I may adapt, with a modification, the words of Napoleon when he received the news of Trafalgar, It is impossible for me, in the very limited time, to speak of everything.

Admiral Sir E. G. FANSHAW, K.C.B. : I should not venture to speak at length after so exhaustive a lecture as we have had from Mr. Laughton, who is a known master of the subject of naval history, but I should like to ask him one question. In the earlier part of the lecture he mentioned the battle of St. Vincent, and the course pursued by Sir John Jervis immediately after the battle; and he seemed to think that if Sir John Jervis had been a greater naval commander in the sense of a tactician, he would have made a general signal to chase, and would have driven the Spaniards on to the Spanish coast. I would ask him whether we ought not rather to consider the critical position that England was in at that moment, depending as she seemed to do almost entirely upon that fleet of fifteen line-of-battle ships which Sir John Jervis then commanded. He had just been driven out of the Mediterranean, and England was in a state of the greatest possible despondency and difficulty. Ireland was in a state bordering upon rebellion, and Hoche was fitting out a fleet—I forget whether it had actually sailed, I think not—but at any rate it was preparing to land a hostile force for the capture of Ireland, with the advantage of finding there a discontented and semi-rebellious population. In England itself there was also very great discontent, and we had not a numerous fleet. The fate of England seemed really to depend very much upon those fifteen sail-of-the-line commanded by Sir John Jervis, and under these circumstances I should rather like to ask Mr. Laughton if he could not a little modify the opinion he gave that Sir John Jervis, having sent the Spaniards flying into Cadiz, had not done enough; and that he ought to have run down upon the Spanish ships on a lee shore in order to complete their destruction. He told us how completely the English were aware of the impotent state of the Spanish ships; and that being the case, of course it was not of so very much importance what became of them when they had been driven off from their purpose of coming into the English Channel, where the weight of numbers would perhaps have told, insignificant as they were individually. I should therefore like Mr. Laughton to say whether he can excuse Lord St. Vincent a little from the criticism he made upon him upon the ground I have mentioned—which he is, no doubt, much more familiar with than I am. I cannot help expressing generally the great admiration I have for this lecture. Perhaps the point that struck me most was the analogy which Mr. Laughton pointed out between Edward III's naval battle of Sluys and the battle of the Nile—the greatest tactical battle of modern times. Although there was an interval of more than four-and-a-half centuries between these two battles, still, the principle upon which they were conducted was the same—both with vessels fastened together with chains, using oars as well as sails, and with line-of-battle ships such as were used in the French war. I think

that lesson is applicable at the present time; for, as Mr. Laughton suggests, there is a tendency, because we have steam, torpedoes, big guns, and armour, rendering naval warfare very different from what it has ever been before, to disregard the fact that the principles which underlie all war are the same, however much the instruments and methods may change. The very analogous tactics that were pursued by Edward III at Sluys and Lord Nelson at the Nile after an interval of more than four-and-a-half centuries may recall the fact that war, whenever it does break out, must be conducted on the same fundamental principles as it was in former times.

Admiral Sir ERASMS OMANNEY, C.B.: I can hardly accept the lecturer's criticism on the manœuvres of Sir John Jervis as to breaking the enemy's fleet in line of battle. It seems to me that Sir John Jervis was following the example of Lord Rodney, who, off Dominica, broke the enemy's fleet in the same manner, the result on both occasions being a great victory. With regard to not making signals to the "Captain," or to the other ships, we must remember how ships are concealed from each other, after the action has begun, by the smoke. I myself have been in action, and I know that I could see nothing of the Admiral, as we were exposed to a continuous fire for three hours. That the "Captain" under Lord Nelson did not follow on was hardly likely, because we know the great success which followed up Lord Nelson in boarding those ships, and therefore I can hardly think the criticisms are such as demand consideration. Then with regard to the battle of Ushant, I know in my younger days, from my relations with other Officers of that day who were contemporaries of the Captains of the 1st of June, they all cried out with general indignation that the victory had not been followed up by chasing some of the ships. Many of the French ships got away, but their rigging was so torn and shattered, and there were many of our ships quite in a position to have followed them up, that such a course would certainly have resulted in a much larger capture. But we know that victory then at any price was of great importance, and therefore shortcomings and little deficiencies were very much overlooked.

Rear-Admiral the Hon. E. R. FREMANTLE, C.B.: I think the subject of naval history is one to which we have never given sufficient importance. It is one which ought to be considered, or at all events more considered—I speak under the correction of Mr. Laughton—at the Naval College at Greenwich. The campaigns of the army form the curriculum of military Officers, but as far as I am aware the history of our naval campaigns has no place in the necessary examinations at Greenwich. Mr. Laughton has done a great deal to raise the study of naval history out of the obscurity in which it has been allowed to rest, and we all know that the attempt has been in the main a very successful one. I think I am not wrong in advertizing to it at this present time, when I see that this theatre, which we hoped to have found well filled, more or less has empty benches. I regret this for Mr. Laughton's sake. I cannot also but regret that Mr. Laughton did not devote the whole of his time, that short hour to which he has alluded, to the study of naval tactics. I am quite sure he could have expended that hour exceedingly well on that subject, and going to that vexed question of international law, which is such an extremely important one in itself, was, if I may venture to say so to such an experienced lecturer, a mistake. I think what was so ably said by Sir Edward Fanshawe is perfectly true—and it was also impressed upon us by the lecturer—namely, that there are ever-living principles of naval tactics which it is not out of place for us to study even in these days of torpedoes and big guns. That is an expression which I am extremely glad to hear strongly put. It is one which is extremely strong in my own mind, and I was very glad to find it put so forcibly, because I certainly was under the impression that even Mr. Laughton himself in one or two of his lectures had not thoroughly appreciated it, or had not, if I may say so, had the temerity to impress it upon us in the face of what he thought was an opposite opinion. With reference to our naval wars and the character of Nelson, I really think it is very important that it should be put on its proper footing. That particular extract read by Mr. Laughton is one to which I have often called attention myself. We often in the Navy hear that old saying, "You cannot do wrong to put your ship alongside of an enemy." Now we know very well that that phrase taken without its context gives a very erroneous idea of the real character of Nelson and his tactics. I am extremely glad that attention has been

called to that. As regards our power and the extract read from Sir Clowdisley Shovell, which states that an erroneous view is taken by Englishmen generally as to their strength, I may say that good Englishman as I hope I am, and with all the belief which I hope I have in common with so many more in the power of our sailors and in their good conduct, I think it is very well that any such erroneous opinion as that should be exploded ; if we take the history of the war to which the lecturer has particularly alluded, I think some further illustrations might be given of it. We know perfectly well that at the commencement, the French were at a very great disadvantage ; they did not fight with their old Captains or even with their old experienced crews. An allusion has already been made to the Spaniards in their action off Cape St. Vincent. Let me refer to another instance. Many here will recollect that in the second action of Sir James Saumarez off Algeciras, as you will find in "James's Naval History," Captain Keats of the "Superb" ran between two Spanish first rates, and by various dodges he succeeded in making each of them think they were fighting English ships, when they were fighting each other, and both were blown up. That is one instance which shows how very inferior the Spaniards were in their organization ; we do not find that the French ever fell quite so low as that. But if we turn on the other hand to the whole history of the war with France, I think we shall find no single instance of an English frigate ever taking a French line-of-battle ship, or anything approaching such a success, against a great disparity of force, and those who imagine such a thing as possible are getting their authorities from those naval romances, not Captain Marryat's, but men like Ballantyne and Kingston. I looked at one of these books the other day, and there I read of an English frigate or even an English privateer doing marvellous things, and I am afraid that even naval Officers do get some of their impressions from these sources. It is a very good thing to have a good opinion of ourselves, but such false estimates won't do for the proper conduct of a fleet, or the proper conduct of a ship, as I think we shall all admit. There are several instances which occur to me at this moment illustrating what I mean : there was the action of the "Ca Ira" with the "Inconstant" and the "Agamemnon," alluded to by the lecturer ; they did not take the "Ca Ira," though she was taken subsequently ; there was the case of an English 64-gun ship and a frigate against a French 80-gun ship, the "Agamemnon" being commanded by Nelson. Then I may take the instance of the "Penelope" and "Lion" and the "Guillaume Tell," another French 80 ; when she was escaping from Valetta, the "Penelope," a frigate, attacked her gallantly, the "Lion," 64, went along-side of her, but they did not succeed in taking her ; it was not until the "Foudroyant," an English 80-gun ship, came up, that she was brought to bay and captured. Then there was the action between the "Leander" and the "Généreux." The "Leander," an English 50-gun ship, coming home with Nelson's despatches after "Aboukir," met a French 74-gun ship ; what happened ? Those who had not studied naval history would naturally say the 50-gun ship took the "Généreux," but we know the reverse was the case. I quote these instances because they are of very great importance from a historical point of view, and it is a great pity that our younger Officers, very few of whom we can see here to-day, do not study these questions. I am quite sure the principles of all war, and the principles of naval war, are universal. There are great changes no doubt, but there is too much tendency on the part of naval Officers to say—we must all have heard it as well as the lecturer—that "everything is changed now-a-days, and that these old matters are not of much importance."¹⁵ The great principles have not changed, and I think the lecturer and this Institution are doing very good service in pointing out to everybody, and those of our own Service especially, that they have not done so. I do not wish to detain you longer, but as the question of international law has been introduced, I should like just to say that consoling as I think it to hear from the lecturer that he thinks that stopping our grain ships in case of war would not be an easy thing to do in consequence of the natural resentment to interference by neutral Powers, still I think he has made a great omission in referring to Lord Stowell's decisions, and that they are scarcely apposite, now that by the Treaty of Paris we have declared that the flag covers the cargo. We in this country at all events are very much inclined to hold honestly by our declarations and agreements, and I think he must admit that his quotations from

Lord Stowell are not exactly in point, because he knows at the present time free ships make free goods, and in the decisions quoted Lord Stowell proceeded rather upon the opposite assumption, viz., that the flag did not cover the cargo. His decisions therefore are not exactly in point, and consequently I am sorry to say I for one cannot feel so entirely reassured as to the certainty of our grain ships coming through in case of war as Mr. Laughton seems to be. I thank him very sincerely for the extremely good lecture he has given us.

Lieutenant CRUTCHLEY, R.N.R.: I think that the fast mail steamers we build now are well able to take care of themselves. I do not refer to short voyages as between Liverpool and America, but to long ocean voyage steam-ships with crews of from 130 to 150 men, many of them commanded by reserve Officers and with reserve crews. If those ships were supplied with guns I think they could take very good care of themselves and give a good account of any vessel that might attack them; because they would be too fast for the men-of-war of the smaller class that would be likely to be sent out against them, and they would have a very fair chance of success against vessels of their own class, armed perhaps hurriedly and in an equally makeshift fashion.

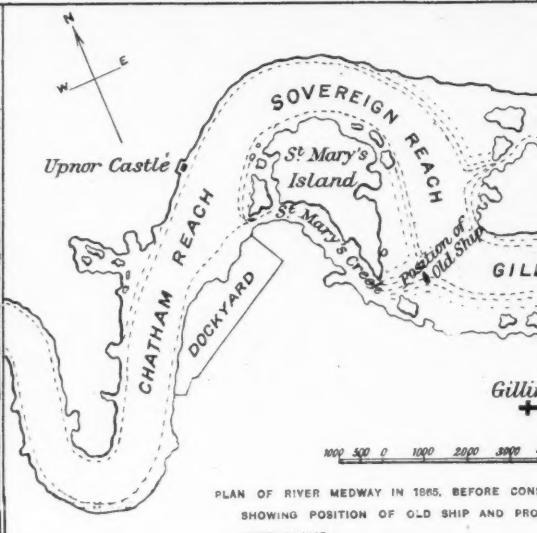
Mr. LAUGHTON, in reply, said: I think there is not very much that I have to say, except in reference to Sir Edward Fanshawe's remarks. There is no doubt that he is quite right in what he said as to the state of England and of Ireland at the time of the battle of Cape St. Vincent. A very great deal did indeed hang on that little fleet with Sir John Jervis. That he accomplished what he had to do is certain; he effectually put a stop on the Spaniards showing themselves in the Channel. The political effect in England was enormous. The Bank had suspended cash payments; national bankruptcy seemed imminent; and the reaction on receipt of the news of the victory was almost excessive. In that way, politically speaking, it may be said that the fleet under Sir John Jervis did all that it was wanted to do. But what I meant in my lecture was that, from a mere tactical point of view, I could conceive that such a fleet as Sir John Jervis had under his command, matched against a fleet such as the Spaniards had, and knowing its inefficiency, might have achieved a more decisive result than permitting the Spaniards to retire unmolested, and with the capture of only four ships. I am confident that had Nelson in the zenith of his career, say three or four years later, been in command, the victory would have been much more overwhelming. I think that Hawke, perhaps next to Nelson our greatest naval hero, would also have achieved a more complete success. But since, as Sir Edward Fanshawe has so well said, such a very great deal depended on the safety of that fleet and on its accomplishing the exact end in view, to attribute blame to Sir John Jervis is out of the question. Still, as a point of criticism, and from a purely tactical point of view, considering, in fact, the tactics apart from the politics, I think he might have done more. I must say I do not quite follow Sir Erasmus Ommanney in comparing the battle off Cape St. Vincent with Rodney's action off Dominica. I should say two actions, both resulting in the defeat of the enemy and in the capture of a certain number of ships, could not by any possibility be more different. As to Sir John Jervis not being able to make any signal when the "Captain" broke out of the line and wore round, there was no smoke to hinder it. The battle had this peculiarity, that signals were going on all through it; but there was no signal about this. Sir John Jervis saw what had happened perfectly well, but I do not think that he quite understood it. What Admiral Fremantle said about the pernicious trash which is foisted on the youth of the present generation as naval history delighted my heart. It makes one's blood boil to see such rubbish put forward, sometimes under the name of naval novels, sometimes under the name of naval history. Admiral Fremantle's reference to the capture of the "Guillaume Tell" was also very well put. The part played by the "Penelope" frigate was extremely beautiful and most brilliant. She was lying just outside Valletta on the look out, when the "Guillaume Tell" ran out one dark and cloudy night. The "Penelope" followed, and finding that she had the heels of her, hung on to her, yawning up first on one quarter and then on the other, and in that way firing broadside after broadside till the "Lion" came up. The "Lion," ranging up alongside and bringing her to close action, was speedily dismantled; but then the "Foudroyant" came up and completed the business. Though the "Penelope"

could scarcely be said to have engaged her, she did, by hampering her flight, enable the "Lion" first, and afterwards the "Foudroyant," to bring her to action. I am very glad to hear that our ocean-going merchant steamers may be considered able to take care of themselves; but, as I said, it is a matter of force. I can readily believe that a large steamer carrying 150 men, and adequately armed, might beat off some of the smaller cruisers. But the case of the "Kent" Indiaman, to which I referred, a vessel which had on board something like 200 men, and was captured in fair fight by the "Confiance" privateer, with not more than 130 men, shows that when it comes to hard fighting there is a great difference between the crew of a merchant ship and that of a ship of war. The merchant ship's guns are perhaps embarrassed by merchandise, and the men have not that cohesion, drill, discipline, and confidence in their Officers that the crew of a ship like the "Confiance" had. Admiral Fremantle said he wished I had devoted more of my time to tactics. I would gladly have done so; but I understood that it was the wish of the Council that I should give historical illustrations of some of the points that have lately come forward as matters of present interest; and it was on that ground I tore myself rather reluctantly from what to me is the more congenial study of tactics, to enter into some of the vexed questions of international law. The decision of Lord Stowell, to which I referred, had nothing to do with the cargo. The question was one as to the ownership of the vessel; the decision being that the sale to a neutral was, under the circumstances, invalid. With that decision the modern declaration of "free ships, free goods" has nothing to do.

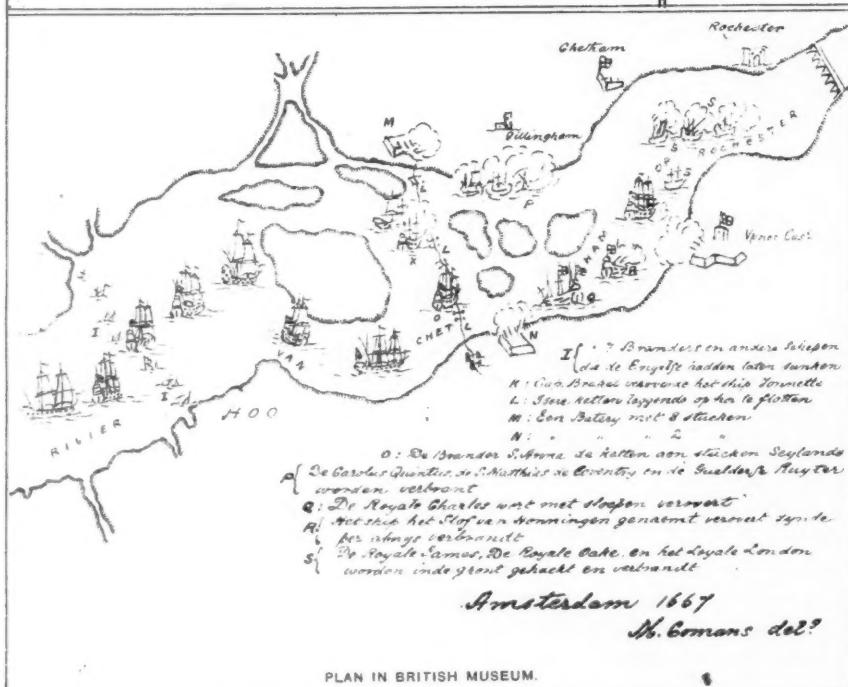
The CHAIRMAN: I am sure that we all regret that we have a small audience to-day, but it is not because the subject is not an interesting one. The afternoon of the 24th of June in this gay city is not quite the moment for drawing a large audience to hear a lecture. I was much gratified at being asked to take the chair on this occasion, as Mr. Laughton is an old shipmate of mine. He may not know that I had the power of influencing his destiny, and perhaps also am the cause of his being here to-day. When serving in the "Prince Consort" person in authority wrote and asked my opinion of Mr. Laughton, and whether I could recommend him for an appointment to the Naval College at Portsmouth, and I believe that in consequence of my reply he was appointed, and subsequently transferred to Greenwich, where I am sure he has done a great deal to improve the education of naval Officers, and particularly on the subject of naval history. I will not continue the discussion, but will only beg on your behalf (as well as on my own) to thank Mr. Laughton for his able and interesting lecture.



FROM A PHOTOGRAPH OF THE OLD SHIP, TAKEN BY ROYAL ENGINEERS. 1876.



PLAN OF RIVER MEDWAY IN 1885, BEFORE CONSTRUCTION
SHOWING POSITION OF OLD SHIP AND PROPOSED
USED IN 1867.



Amsterdam 1667
H. Comans del?

PLAN IN BRITISH MUSEUM.

1. The 3 Dutch ships w/brake y'g about
 2. Two small ships without y'g or chayne
 3. The Unity
 4. The Oregon
 5. 6. The two slight batteries at both
 ends of the harbor
 7. Charles & V. C. - The Mathias
 8. The Monmouth as shadow during
 the assault
 10. The P. Charles
 11. Mary
 12. A. Blake
 13. B. Blake
 14. James
 15. The Collector's Gunboat
 16. The Prince
 17. The Old Samson
 18. The New Samson
 19. The Faucon
 20. The Rams' Bow
 21. The unicorne
 22. The Harry
 23. The Hebe
 24. The Vanguard's launch
 a. A boat with 8 guns
 25. Two other batteries w/ 24 & 18 guns
 a. A battery of 16 guns in the old
 dock not mounted
 Note. these three batteries were
 not finished till after the fight



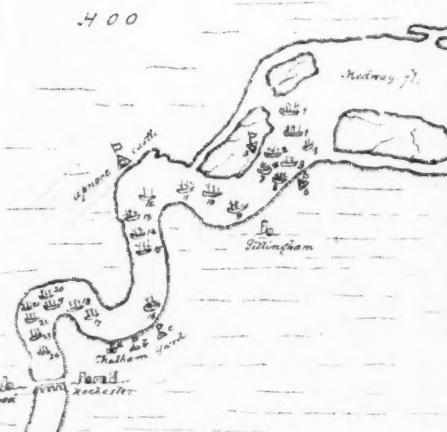
1885. BEFORE CONSTRUCTION OF NEW BASINS,
OLD SHIP AND PROBABLE POSITION OF CHAIN

A Scheme of the Course of the Dutch - Helle & action
at Chatham on 18th June 1667
taken upon the place by J.E.

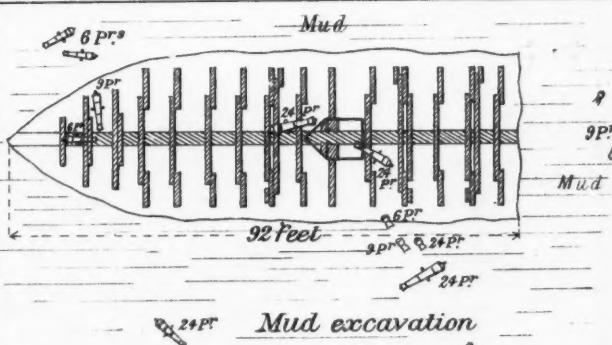
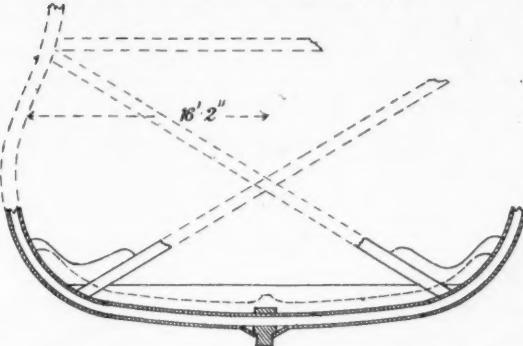
Brake of chayne
8 yds chayne
Vessel at both
ends
Hathas
lay during

A
and
24 & 16 Guns
in the old
ship were
the fight

Streets
Gillingham
Chatham
Rochester



SECTION OF OLD SHIP, 1876.
PROBABLE FORM OF MIDSHIP SECTION SHOWN WITH DOTTED LINES.



PLAN SHOWING POSITION OF THE GUNS FOUND NEAR
THE OLD SHIP DISCOVERED 1876 DURING THE
PROGRESS OF CHATHAM DOCKYARD EXTENSION.



THE DUTCH IN THE MEDWAY, JUNE 9—13, 1667.

By Commander D. A. CROFTON, R.N., H.M.S. "Pembroke," Chatham.

In the spring of 1876 an interesting discovery was made at Chatham Dock-yard. During the excavations for the new basins, then under construction and now completed, the remains of a considerable portion of an old ship were found, buried beneath 15 feet of mud. (Plate XVI.)

The vessel was generally considered to have been formerly a Dutch man-of-war. She was pronounced Dutch by several competent authorities, from her build and structure, which were foreign to British shipwrights, and there could be no doubt about her having been a man-of-war from the number of guns embedded in the mud around her.

Consequently, it was not unnaturally at first assumed that the remains thus curiously brought to light were those of one of the Dutch ships which sailed up the Medway under De Ruyter to attack Chatham in the reign of Charles II, nor was it till the true account of the action had been consulted that, unfortunately for this theory and our national pride, it appeared that the Dutch during their operations had not lost a single vessel ; the loss, on the contrary, having been all on our side, and that several of our finest ships had been burnt. Curiously enough, among those so destroyed were three Dutch prizes, all ships-of-war, and employed by us to defend the passage of the river against their former owners. These three ships were named "Mathias," "Charles V," and "Sancta Maria," and it was supposed from her position and measurement that the old ship discovered was no other than the first of these three—the old "Mathias." Two of her guns found lying beside her, but which are now planted peacefully in the ground, flank the small garden near H.M.S. "Pembroke," and to the daily view of these old cannon, and a wish to know something more of their history, must be ascribed the following attempt to give a short account of the Dutch operations in the Medway in 1667, and the historical occurrences immediately preceding, which led to this the only foreign invasion since the Conquest.

During the Commonwealth the Navy had, under the conduct of Blake and his distinguished supporters, arrived at a high state of efficiency, and the Dutch, our principal opponents at sea, had been repeatedly beaten in numerous severe engagements. But the Restoration coming in 1660 brought with it changes which rapidly reduced the Fleet to a pitiable state of inefficiency, humbling us in the face of the rest of Europe, and contributing no doubt to the causes which ultimately led to the downfall of the House of Stuart.

The Navy, it must be remembered, though changed in name was in reality that of the Commonwealth ; the Officers and crews were mostly the same, and it need not be wondered at that they should at first require a little humouring from their new masters. But it was not at all with this spirit that the cavalier party took up the reins of government. All their first acts seem to have been stimulated and guided by a mean party desire for revenge, for among Englishmen such persecution as followed the accession of Charles II to power can only be called a party persecution. Even the bones of Blake, Cromwell's gallant Admiral, the conqueror of Tromp, the greatest sea captain of the age, were not considered sacred ; so warped had men's minds become in their desire for revenge as to take pleasure even in disturbing the rest of the dead, and these illustrious remains were rudely disinterred from their

splendid resting place in Westminster Abbey, and thrown into an obscure grave.

Such an insult was not likely to go unnoticed by the Navy, and it is easy to conceive that this outrage on their hero would be deeply resented by his former comrades, and that the memory of the dishonour would live in the minds of many, adding fuel to the discontent caused by subsequent bad management.

The year 1665 ushered in the first war of the Restoration. After a comparatively long period of peace it was perhaps inevitable that war should sooner or later break out between the two greatest maritime Powers. Politically and commercially the Dutch Republic was at its height, and our interests came in conflict in all quarters of the globe. The immediate cause of the war was, however, due to the disputes and rivalries on the Gold Coast between the English and Dutch African Companies. A Dutch fort was first taken, next an English settlement burnt, and so on, till eventually, the colonists appealing for assistance, war was declared, first by the Dutch in January and by ourselves in February, 1665.

The war was found to be not displeasing to either the King or the Duke of York, the first probably foreseeing the handling of large sums of money, and the latter, then Lord High Admiral, desiring an opportunity of adding to his reputation and influence.

A powerful fleet was fitted out, the numbers of which are variously estimated by different naval writers, but which are given in the memorials of Penn, vol. ii., as 110 ships, besides fire-ships, carrying 4,537 guns and 22,206 men. The command was conferred on the Duke of York with Prince Rupert and the Earl of Sandwich under him. The Dutch also fitted out their fleet of about the same number of vessels, giving the command to Opdam. The rival fleets having put to sea met off Lowestoff on 3rd June, and a great battle ensued, in which the Dutch were defeated with the loss of some twenty-four ships taken, burnt, and sunk, and some 2,500 prisoners, besides killed and wounded. This victory, however great it may appear, does not seem to have satisfied everyone. We find Pepys hinting that "much more might have been done if the enemy had been pursued," and it is evident that the opinion of the time was that the battle was not conducted with either much skill or persistence, complaints being made that the advice of the older seamen was ignored, and too much authority given to hectoring young cavaliers, who had no previous experience at sea.

Undoubtedly, though, it was a victory, and this early success in his first war seems to have lulled Charles and his evil advisers into an unwise sense of security, and no attempts were made to remedy the abuses in the Navy or deal with the complaints of the seamen. The King was warned at the time that the Dutch when beaten and hard pressed only fought with greater obstinacy, but content with the boastful assurances of his courtiers that the Navy had proved itself to be, and was, invincible, all complaints and remonstrances were stifled and unheeded, and a reduction even made in the number of ships, so that a comparatively small squadron was fitted out in the following year.

Meanwhile France, which country had been at best but an abstainer from open war, and was known to have intimate relations with the Dutch States, decided to espouse their cause openly, and declared war in January, 1666. Denmark, too, considering herself to have been treated badly by the King's Government on a previous occasion, allied herself with her two more powerful neighbours, and matters began to assume a most serious aspect in all parts of the world.

In the spring of 1666 the English fleet, which consisted of about seventy sail, put to sea under the command of the Duke of Albemarle and Prince

Rupert, the Duke of York being kept at home, as it was not considered politic that he should expose his person in action, and the Earl of Sandwich being away as Ambassador to Spain.

In the month of May this fleet was lying at anchor in the Downs provisioning and completing for sea, and, by all accounts, finding it a hard matter to get the necessary stores out of the already half-starved and impoverished dockyards.

While lying so employed, news was received that a French squadron, under the Duke of Beaufort, had left Belle Isle, and was coming up Channel with the intention of joining the Dutch, and as at the same time the Government were informed that the Dutch fleet would not be out for six weeks, it was considered advisable to detach Prince Rupert, with his division of twenty sail, to try and intercept the French. He accordingly sailed with his squadron for this purpose on the 23rd May, though the reported sailing of the French was found afterwards to be a fabrication.

Early on the 1st June, after this unfortunate separation of the fleet, the Duke of Albemarle got under weigh from the Downs, steering to the north, with the intention of making for the Gunfleet, which was considered a more convenient anchorage for the ships. He had not proceeded far when, to his great surprise, at 8 A.M. the whole Dutch fleet of about eighty sail was despatched at anchor off the North Foreland. Calling a council of war, it was hastily decided to fight at once without waiting for Prince Rupert to rejoin, to whom, of course, orders of recall were sent immediately. The Duke of Albemarle, therefore, with his fleet of fifty sail, gallantly proceeded to attack, the Dutch getting under weigh to meet him, some of them being obliged in their haste to cut their cables. A furious battle ensued, which lasted continuously for four days, but, notwithstanding all his bravery, the Duke found himself overmatched. On the fourth day Prince Rupert rejoined, and throwing himself into the fight with his usual ardour, succeeded in saving the fleet, and converting what would in all probability have become a great disaster, into a drawn battle. Tired and shattered, the respective ships hauled off, both sides claiming the victory. The losses were enormous; on our side were killed Admirals Sir Christopher Minns and Sir William Berkley, and about 2,000 gallant seamen, besides a like number of prisoners taken, while ten ships were captured or destroyed, among them being the "Essex" and "Swiftsure," which were carried over to Holland. The Dutch also lost heavily, but left no captures as trophies in our hands, and, as well as it is possible to judge at this date, it seems that they had the best of it. The battle was certainly called afterwards in Parliament, by the Committee appointed to investigate, one of the "*disasters of the war*," and we may cite the opinion of Evelyn, who on 6th June wrote, "God knows it was rather a deliverance than a triumph," to prove that it was not considered a victory by everyone. Pepys also writes on June 7th, "I do find great reason to think we are beaten in every respect," and he adds, "there is nothing but discontent among the Officers, and all the old experienced men are slighted," which is a significant remark enough, as showing which way the wind blew.

This near escape from disaster does not appear to have awakened the King to the true state of the Navy. Though in the subsequent actions of the year our fleet generally claimed the victory, the Government seemed to have failed to apprehend the growing power of Holland, and notwithstanding the remonstrances of the Commissioners of the Navy and of the Admirals and Captains of the fleet, it was decided to pay off the greater number of the ships, laying them up in ordinary, and keeping only two small squadrons at sea.

The corrupt state of the Court at this time is a matter of history; the public money was squandered in the most shameless way, and applied solely

to gratify the whims and provide for the debased pleasures of the courtiers. Later on, when an inquiry was instituted by Parliament, it was found impossible to trace how the money voted for the fleet had been disposed of, though there could be no doubt that it had been simply lavished on the favourites of the King.

Pepys says : "The Parliament do find the King should have 900,000*l.* in his purse by the best account of issues they have yet seen, yet we should report in the Navy a debt due from the King of 900,000*l.*; at this rate it is not in the power of the kingdom to make a war nor answer the King's demands." No doubt Charles himself could not in the least have told what had become of the money. He became the laughing stock of Europe, caricatures of him were printed in numbers on the Continent : in one he was shown with his pockets turned inside out and hanging out empty, in another with two courtiers picking his pockets, in a third leading two ladies, while others were abusing him. Poor Charles, "he never said a foolish thing and never did a wise one," and those who should have helped and guided their Royal master seem always to have contrived to influence him for evil. It was an unlucky reign in other ways. The year 1665 was the year of the plague, and hardly had people recovered from that dreadful visitation when the great fire of London broke out. With these misfortunes to bear, and instead of a strong Government to lean on, a heartless and indifferent Court whose profligacy was notorious, what wonder that a feeling of callous indifference to national affairs should pervade all classes ? We find even one of the Commissioners of the Navy, Sir William Coventry, declaring that to "all future complaints of lack of money, he will answer but with the shrug of the shoulders," "which," Pepys sorrowfully adds, "did come to my heart to see him abandon the King's affairs, and let them sink or swim;" and on another day it is recorded that "things are in that bad condition, that I do daily expect that we shall fly in each other's faces, when we shall be reduced every one to answer for himself." And he reports the opinion of one who thinks "that the Parliament will never give the King more money without calling people to account, nor will ever make war again, but they will manage it themselves."

While the Commissioners of the Navy were about to "fly in each other's faces," and the King and Court were haggling with Parliament, it is not to be forgotten that the Dutch were refitting their fleet, and waiting their opportunity. It was not long in coming. The English ships laid up in ordinary, the dockyards and victualling yards impoverished to the last degree, and crying for stores, seamen clamouring for wages long overdue and deserting wholesale to the enemy, all this we may be sure was soon known in Holland, and the Grand Pensionary, De Witt, was not slow in preparing his blow. One cannot do better than translate here a passage from the life of De Ruyter, published at Amsterdam in 1687 : "At that time, it being judged that the English would not have a sufficient force to meet successfully the naval army of the States-General, it was resolved by the Grand Pensionary that some important enterprise should be attempted, even to the entering one of the enemy's ports. That the military deputies of the Grand Pensionary should be strongly urged to execute this design, and risk something with a view of being able to conclude with the enemy with greater celerity an honourable and assured peace." We see, therefore, that the Dutch were anxious to strike before the conclusion of a peace, which, viewing the state of inefficiency of the English Navy, might be sprung upon them at any moment, judging no doubt that they would in this case be in a better position to dictate terms.

A powerful fleet was therefore fitted out in the spring of 1667, the command being given to De Ruyter, with Van Gent and the best Officers of the Dutch Navy under him. De Ruyter's sailing orders, which are also translated from the same work, describe very completely where the attack was to be made.

After some preliminary remarks, they state "that the Naval Army of the States divided into squadrons, shall proceed to the Meuse, and that having either there or *en route* received on board the soldiers and munitions of war distributed along this river, it shall make sail for the Thames, that, God willing, it should enter this river, and from thence the River Medway, which leads to Chatham and Rochester, and that either by armed boats, fire-ships, or with as many men-of-war as possible they should try under the favour of Heaven to destroy or take all the English ships-of-war that should be found before or near Chatham, or elsewhere on the river, and to burn the King's magazines, the provisions and munitions of war that should be found in that place, or to render them by whatever other means possible totally useless."

This was a complete and energetic description of what it was hoped would be done. Accordingly we find the fleet with as little delay as possible putting to sea, and next, that sixty sail of the line, besides frigates and smaller vessels, had anchored on June 7th in the King's Channel.

Having seen the Dutch expedition started, let us cross before it, and note what preparations were being made on our side in the River Medway to receive them. "Ill news travels apace," and apparently the King and his Ministers had been made aware of the projected invasion sometime in March, for we find the Duke of York writing to the Navy Commissioners on the 25th of that month, directing that all ships on the upper part of the Medway are to be moored in the safest places, especially the larger ones, and for their better security the "Charles V" and the "Mathias" are to be so moored that "they may bring their broadsides to bear on the chain, a competent number of men being allowed to each of them."

This is the first mention of the chain, which was to be stretched across to bar the Medway opposite Gillingham. Gillingham is a small village on the right bank of the river, about $2\frac{1}{2}$ miles below Chatham. The river here varies in width of from 500 to 800 yards, and between this and Chatham it winds about, making several deep bends or reaches. In Sovereign Reach, immediately above the chain, and in Chatham Reach, opposite the Dockyard, lay upwards of sixteen large line-of-battle ships, among the finest in the Navy. These ships were all in ordinary, or reserve, perfectly sound and serviceable, though not in a fit state to put to sea, being only partially armed and rigged, and with no crews appropriated to them.

Chatham Dockyard, also on the right bank of the river, about 12 miles from Sheerness, was though small considered a good one, and its position up a difficult and tortuous river, a tributary of the Thames, made it one of the most secure in England. It is not easy to decide what may have been the exact position of the chain, the depth and width of the river having it is known much altered since, and no traces of any sort of the defences being now discernible, but it seems likely, judging from Evelyn's plan and from an old Dutch plan obtained at the British Museum, that it stretched from some point a little below Gillingham Church to a position about midway between Folly Point and Hoo Ness. Pepys states that when he visited this spot he caused a link to be measured, and found it $6\frac{1}{4}$ inches in circumference. This is clearly a mistake, as with the total weight of chain given in the naval papers in Chancery Lane as 14 tons 6 cwt., a cable of this size would only be about 150 yards long, whereas the distance across was at least 700 yards. It is possible that instead of taking the circumference he may have had the length of the link measured, as $6\frac{1}{4}$ inches would be about the length of link $1\frac{1}{2}$ inch chain, and a chain weighing 14 tons of this size would give a length of about 800 yards. Chain cables were then unknown at sea, so it is probable that this one had been specially made for the purpose. It was supported across by several floats or stages, and the ends firmly secured to piles driven in on either shore, and hove up taut to the required tension by windlasses on

either bank. The land defences were two flanking batteries, platforms as they are called in some of the records, very ill constructed, and run up in the hurry of the moment. Evelyn describes them as two very slight batteries, and from the Duke of Albemarle's report to the House of Commons, it appears that they were not properly armed, all the guns not arriving till after the attack. Besides the land defences, there were moored behind the chain, the guard-ships "Mathias" of 52 guns and the "Charles V" of 53 guns, also by some accounts the "Monmouth" of 70 guns, though this latter does not appear to have taken part in the action, complaints being made of her "coming away too soon from the chain, where she had been placed with the two guard-ships to secure it." All these ships lay either with springs on their cables, or moored head and stern, so as to bring their broadsides to bear on an enemy advancing up the river, and to cover the chain. The "Mathias" and "Charles V" had been formerly Dutch ships, the first captured during the Commonwealth in 1653, and the latter in the Duke of York's battle of Lowestoff in June, 1665, each carried 250 men, and were commanded respectively by Captains Henry Millett and J. Fortescue. On the day before the action several ships were sunk in different parts of the river to bar the passage, but this will be again referred to further on. The command of the Medway was confided to Rear-Admiral Sir Edward Spragge, who with a small squadron lay at Sheerness. He was an Officer of high repute and merit, and no doubt did his best to urge upon the Government to give him the assistance in men, money, and matériel that was required for the proper defence of the river. Prince Rupert said afterwards in his report to Parliament, "that His Majesty's commands were issued forth for the fortifying of both Harwich and Sheerness, but though many months passed before the Dutch made their attempt, yet nothing had been done to render Sheerness defensible against an enemy, to which neglect we may justly ascribe the burning of the ships at Chatham, and the dishonour that attended it." As to the delay in raising the fortifications, one account openly states that though there were plenty of workmen to be hired, still "there were seldom more than ten at one time employed;" but the real reason seems to have been that about this time the King was hoping to conclude a peace, negotiations for the purpose having actually commenced, and with the usual starvation policy of the time it was thought that further expense on account of the fortifications might be avoided. This view of the matter is further borne out by the following extract from an old letter of the time which states "that the captains of the block-houses," as these forts were called, "had informed the Council of their defects of guns, platforms, and shot, but the Council replied that the peace being as good as concluded no more money was to be issued." Be this as it may, the stores at Sheerness were actually left without further protection than that afforded by one small fort or block-house, as usual badly armed and ill equipped.

The Superintendent or Commissioner of Chatham Yard was a Mr. Peter Pett, a rather noted shipwright in his day, but a man of pacific habits and slightly indolent disposition, probably a good clerk and an excellent correspondent, and careful to a degree about small matters, but incapable of taking the lead in a crisis like the present, or of compelling discipline and obedience from his subordinates. In fact, of discipline there seems to have been none, the workmen apparently keeping their own times, and doing as little or as much work as they pleased. It must, however, be stated that they had received no regular wages for some considerable period, but, like the seamen, had been paid with tickets, or Government I.O.U.s. The credit of the Government being so bad, and the corruption of officials so great, that these tickets were not negotiable by ordinary means.¹ Allowing, however, every

¹ The following extract from vol. ix, Journals of the House of Commons, British Museum, is here appended:—

excuse in his favour, there is no doubt that the principal charge against Peter Pett of not removing the large ships higher up the river into safety, after receiving distinct orders to do so, was fully substantiated. So long ago as the 25th March, the Admiralty had sent directions, through the Duke of York, that this should be done, and nothing could exonerate the Dockyard officials for their disobedience of these commands. After the attack, when the King and his Council were looking for a scapegoat, Pett was arrested, and committed to the Tower, on a warrant issued by the House of Commons, after charges preferred against him by the Duke of Albemarle.

Pepys, referring to the trial, says : "That his faults to me seem only great omissions ; in general I find him to be but a weak silly man, that is guilty of horrid neglect in this business all along." In the end, the charges were not all proven ; but he was convicted of neglect, and liberated on bail, "the articles of impeachment were carried to the Lords, but were no further prosecuted." Probably he was never employed again, and so we may leave him.

Having given some idea of the state of the Medway in the early part of the year, let us return to De Ruyter and the Dutch fleet, who were left on June 7th anchored in the King's Channel.

The 8th and 9th were spent in assembling the forces, in councils of war, and in preparations for the attack, and on the 10th, learning from the master of a Norwegian trader that several Barbadoes merchant-ships were anchored higher up, above the Hope, Van Gent, with his squadron, was detailed to attempt their capture. He appears to have sailed up with the early flood, but the same tide enabled the merchantmen to escape towards Gravesend, and, not caring to follow them, Van Gent anchored, weighing again with the first of the ebb, and dropping down to the mouth of the Medway, where he arrived about noon ; it was then at once decided to make an attack on Sheerness, and knowing how ill-prepared the fort there was, it can be imagined that this was not a matter of much danger or difficulty.

Three Dutch vessels, commanded by Captains Jan Van Braakel, Pieter Magnuis, and Jan du Bois, were ordered in to cover with their guns the landing of the troops. On the approach of the Dutch ships, "The Unity," one of Sir Edward Spragge's squadron, which appears to have been lying at Sheerness, quickly slipped her cables, and made off up the river in the direction of Chatham. The Dutch Captains advancing, particularly Braakel, who was continually to the fore, burnt the "Crown and Brill" hulk, and commenced cannonading the fort for an hour and a half, till, under the cover of the guns, 800 men were disembarked, and led to the assault by Colonel Dolman. The garrison fled without offering resistance, and a Captain Vos, of the "Young Prince," had the honour of hauling down the flag, and replacing it by that of the States.

The Dutch say they found in the fort fifteen iron guns, and also a large number of masts, yards, and other spars, and munitions of war valued at 8,000*l.*, and after carrying off everything that was of use to them, they set fire to the remainder. The losses in this attack were apparently on the Dutch side *nil*, and on ours only some two or three men killed and wounded, but it

" When by bills sent up the whole ship's company were directed to come to the office to receive the money due upon their tickets at a day certain, they were there delayed and made to attend many months, till being tired out they were by necessity compelled to sell their tickets at 5, 6, 7, 8, 9, and sometimes 10 shillings in the pound loss, many of which being once sold, we find to have been speedily paid : which must imply a very corrupt contrivance to have been between the principal of the Navy and Treasury on one part, and the buyers of the tickets on the other. It hath alienated the hearts of the seamen from His Majesty's service, and made many that had no other ways of living but going to sea, rather go to the enemy than beg." (Report of Committee to enquire into the miscarriages of the late war.)

is not easy to get a good English report of the action. The "London Gazette" has the following meagre account, glossing over the whole affair as a matter of small importance: "The 10th, in the morning, they (the Dutch) appeared at the lower end of the Hope, and at the turn of the tide fell down again; yesterday they, with some others, fell upon the platform at Sheerness, which being a place of small strength, and unable to resist the force of their artillery, after a stout resistance made by Sir Edward Spragge, and some few men with him, they were constrained to quit it."

At Chatham, during this time, further preparations had been made. On receiving intelligence of the appearance of the Dutch in the Thames, and of the capture of Sheerness, there appears to have been a complete panic at Court, and at the Admiralty all was confusion. The 9th and 10th of June were spent in sending orders and counter-orders, in marching men here and there, taking by force several merchantmen in the Thames, converting them into fire-ships, and then to bar the river at Gravesend, sinking these very ships prepared at so much expense. "And strange our confusion," says Pepys, "that among them that are sunk, they have gone and sunk the 'Franklin,' one of the King's ships, laden with stores to a very considerable value; they speak also of another ship, laden to the value of 8,000*l.*, sunk with the goods in her, and of a foreign ship that had the faith of the nation for her security."

The Duke of Albemarle (the Lord-General) was ordered at once by the King "to repair to Chatham and take the best order he could to defend and secure the ships there." His "narrative of events" presented to the House of Commons, and published in the journals of the House, is undoubtedly the best account we have of what actually took place.

He went first to Gravesend, where Pepys records, perhaps a little too slightly, of Monk, the gallant and experienced General, that on the 13th he found "the Duke of Albemarle, just come there, with a great many lords and gentlemen, with their pistols and fooleries." Hearing there of the Dutch attack and capture of Sheerness, and seeing that Gravesend was not immediately threatened, the Duke proceeded to Chatham. On his arrival he found every one so distracted with fear that he could have "little or no service from them." Going to the chain he gave orders for arming the batteries, setting the soldiers to work and reinforcing Upnor Castle, which was placed under the command of Sir Edward Scott. He next considered where to sink ships without the chain, and after a consultation with the Dockyard Officers, and relying on their experience and knowledge of the river, three ships were sunk in the narrow passage by the Mussel Bank, a shoal about two miles below Gillingham, and afterwards, on a further request, two more ships in the same place. These five ships, from a list in the Bodleian Library, appear to have been the "Dolphin," "Barbadoes Merchant," "Unicorn," "John and Sarah," and the "Constant John," all merchantmen prepared as fire-ships. The Duke, however, not satisfied with the Yard Officers' report that these obstructions would make the river perfectly safe, for his own further satisfaction ordered Sir Edward Spragge, who by this time had arrived from Sheerness, to take a boat and sound the passage. Sir Edward, to everyone's dismay, found another channel, which the Duke states "the pilots and master's attendant had not before observed to be deep enough for great ships, though it was so." But time was pressing, and rather than risk the delay of attempting further to bar this passage, which was some way down the river, the Duke decided to sink some ships higher up within the chain, where he could superintend the operation himself. In the meanwhile however, about noon, before the batteries were finished, the enemy, flushed with their easy victory of the previous day at Sheerness, came on up the river to where the ships were sunk. The Duke hurriedly proceeded on board the "Monmouth" with a party of

volunteers, and ordered soldiers on board the other vessels to make the "best defence they could." The enemy, however, were so delayed by the sunk ships at the Mussel Bank, and in trying to find another passage, that the tide was spent, and they made no further attempt that day.

This gave time for a reconsideration of the defences, and orders were given to sink the "Sancta Maria" in the deepest place behind the chain, between two ships, which it is here stated "had been previously ordered to lie ready for sinking when occasion should be." What the names of these two ships were, or whether they were sunk or not, it is difficult to say; it is the only mention we have of two ships being actually sunk *at* the chain. At first it seemed that this might refer to the two guard-ships, but on consideration one can hardly imagine that even in the worst of panics an order would have been given to prepare these ships, with their guns, ammunition, and stores on board, for sinking; it seems more likely that they refer to the "Edward and Eve" and the "Hind," two ketches, which in the before-mentioned list are given "as sunk by us to stop the enemy," though we are not told in what part of the river.

Having given orders about the "Sancta Maria," and also further strengthened the chain by backing it with the "Monmouth's" stream, sheet, and small bower cables, frapped round with a hawser, the Duke had other matters to attend to before the close of the day, so it was not till next morning, the 12th June, that he was able to go and see how his directions had been carried out. He then found men towing the "Sancta Maria" to the place intended, but soon afterwards he said he looked "and saw her run aground by the pilot and Master Attendant, at which I was much troubled; for if that ship had been sunk in the place where I had appointed, the Dutch ships could not have got beyond those of ours sunk within the chain, and thereby none of the King's ships within could have been destroyed." This running aground of the "Sancta Maria" took place at break of day on the 12th; a few hours afterwards the second Dutch attack commenced.

At 10 A.M., with a fair wind and tide, and two men-of-war leading, followed by fire-ships, and supported in the rear by more men-of-war, the enemy came on, their leading ships engaging the batteries and guard-ships with their bow guns. Arrived abreast of the "Unity," the English frigate which had cleared out of Sheerness so hurriedly on the 10th, and now lay without the chain (probably only because she could get no further up), the foremost Dutch ship, after a few broadsides, boarded and carried her without much difficulty. This Dutch vessel, called the "Vreede," was commanded by the Captain, Van Braakel, who had previously distinguished himself at Sheerness.

There is a story connected with his leading the attack on this day which is worth relating. He had been arrested in the morning by order of De Ruyter, because that on the previous day, against orders, and to the prejudice of discipline, he had allowed a boat to land with some of his crew. Seeing now that by an act of gallantry he might escape the consequences of his fault, he offered, if released, to take his ship, one of the smallest frigates, and leading the attack on the chain, clear a way for the fire-ships to follow. The other Captains at the time were rather hanging back, and indeed it might well be considered rather a desperate enterprise, so his offer was at once accepted; he was released by order of De Ruyter, and carried out his promises completely, boarding and capturing the "Unity" in the most gallant style with a loss of only three men. It is as well to explain that the "Unity" in all the Dutch accounts is called the "Jonathan" and as she was a Dutch prize this was probably her original name. She is described as a large frigate mounting 24 guns, and carrying 150 men.

Following Van Braakel, one of the fire-ships charged and stuck on the chain, but another larger one coming up, the chain gave way, and "then the

ships came on," says the Duke, "in that very passage where the 'Sancta Maria' should have been sunk."

How and in what manner the chain gave way was a much debated point after the action. Pepys declares that when he visited it he found both ends fast, though some of the floats were gone, and that "where it was broke nobody could tell him;" and in an account of its recovery afterwards it is stated "that when taken up it was in several small pieces, which might either be cut with cold chisels, or the pins driven out of the shackles." What really happened no one knows, but probably when the chain was borne over by the weight of two ships, some of the floats became detached, and the bight then sinking of its own weight, the enemy's ships were able to pass over it without difficulty. Afterwards, in all probability, it was unshackled by them in one or two places, and thus a clear passage was formed for the remainder of the fleet.

The chain, however, in some way made passable another of the enemy's fire-ships. The "Pro Patria" ran into and grappled the "Mathias," set fire to and destroyed her. The "Catherine" fire-ship followed, steering boldly for the "Charles V," but was sunk under her bows; a third fire-ship called the "Schiedam" was more fortunate, for although sunk alongside, before sinking she succeeded in setting fire to the "Charles V," and the fire burning all day, the second guard-ship blew up during the night.

The "Mathias" being destroyed, and the "Charles V" blown up, those of their crews that were uninjured either escaped to the shore by swimming or were taken prisoners.

During this time, we must for our own credit believe that the two batteries at the chain were doing their best, though the Dutch do not appear to have taken much notice of them; the "London Gazette" in its account does say, that "our men made a stout resistance, and showed infinite courage with considerable loss to the enemy," and so we may charitably hope that they did do all they could under the circumstances, but how long this stout resistance lasted is not mentioned, and probably with regard to the batteries, the Dutch account may be believed, which simply says that after having lost some men, they were abandoned. And now follows for us the most disgraceful part of this day's proceedings. Moored a little way above the chain, with only her lower masts in, and 32 out of her 100 guns on board, lay the "Royal Charles," one of the finest ships in the world. Formerly, in the days of the Commonwealth, she had been named the "Naseby," but at the Restoration, having had the honour of conveying Charles and his suite when he returned from Holland to assume the crown, she had been appropriately re-christened. She was by all accounts a splendid vessel, nothing more costly had been made in England, and the gilding of her alone was reported to have cost 10,000 dollars. This magnificent ship, quietly swinging round her anchors, the Dutch captured and carried off, without the least opposition, simply boarding her with a couple of small boats under a Captain Tobias, and taking the few ship-keepers in her prisoners. The Dockyard officials had been repeatedly warned, and ordered to remove her higher up to a safer berth, but this they had negligently failed to do. No doubt they had intended to do so, but with the indiscipline of the yard, it had been put off from day to day, and in the panic of the last moments was entirely lost sight of, so it came to pass, that at the time of the attack, she was left as a tempting bait, and became an easy prey to the enemy. In the operation of carrying her off, the Dutch showed great skill and seamanship, heeling her over to make her draw less water, and taking her down at a time, both for tide and wind, when the "best pilot in Chatham would not have attempted it." It is amusing, though, if true, sad to relate that several English seamen were observed on board the Dutch ships that took her, and that they were heard to call to each other,

"We did heretofore fight for tickets, but now we fight for dollars," and that they had "come to have their tickets paid, and would have them paid before they left." Pepys adds "that it is certain, as it now is, the seamen of England would go over and serve the King of France or Holland rather than us."

The only further operation on the part of the Dutch on this day, was the burning of the "Sancta Maria," which it will be remembered was run on shore, when on her way down to be sunk at the chain. She was a fine Dutch-built ship, also a prize, carrying 70 guns, and called by them the "Schloss van Hooningen." They had intended to carry her off, but she was burnt, the Dutch accounts say, through some mistake; it seems probable that being scuttled and ballasted for sinking, they found it impossible to move her.

The tide having now fallen low, and it being late, all further attack was postponed till the next day, plans being laid for destroying more ships on the morrow, which the Dutch noticed to be lying further up. De Ruyter meanwhile did not forget to go on board the "Jonathan," late "Unity," and personally congratulated Van Braakel on his bravery and daring.

On our side the Duke of Albemarle spent the night in raising new batteries with the help of volunteers, most of his men having deserted, because he had no money to pay them. The Dockyard officers appear to have put their heads together, and amused themselves by cutting from their moorings the remainder of the ships lying above Upnor, allowing them to float up on the tide where they would, scuttling and sinking some which had had the stupidity to drift into exposed positions. On the whole perhaps this was the best thing that could be done, short of destroying them, to prevent their capture.

Being reinforced by five more fire-ships the Dutch on the following morning decided to attempt the destruction of the large vessels, observed to be lying above Upnor. A squadron of six men-of-war was therefore told off, to draw off the fire of and engage the castle and batteries; so that under cover of the smoke the fire-ships might pass up on their work of destruction. The Captains of the six ships received written orders from De Ruyter, describing what each had to do, concluding with the caution "that they were not to turn back on any account, or fail in the duty committed to their charge, under pain of corporal punishment," and in separating from them after an interview, he exhorted them energetically to acquit themselves bravely on this occasion, and to render to the State those services which it had a right to expect from brave and loyal subjects; this they all promised to do, and knew how to keep their word.

About noon the squadron got under way, with a light E.N.E. breeze and flowing tide, and at 2 p.m. arrived within range of Upnor and the battery constructed on the Chatham side. These they engaged fiercely so as to favour the passage up of the fire-ships. Both Upnor and the batteries returned a heavy fire of cannon and musketry, but the Dutch were not to be denied, and as it is said in an English account, "made no more of Upnor's shooting than of a fly."

Passing up in the smoke, the fire-ships made an attack on the three vessels—"Royal James," "Loyal London," and "Royal Oak"—lying about a cannon's shot above the castle; these three ships had been scuttled, but in sinking, being all fine vessels of 80 guns, and the river at the place comparatively shallow, their sides still towered for a considerable height above the water, which unfortunately remained deep enough for the fire-ships to sail up alongside them.

At the supreme moment De Ruyter himself, wishing to share in the glory of the approaching conflagration, jumped into a boat, boarded one of the fire-ships, of which he took command and gave the necessary orders for

steering her towards the enemy. The "Rotterdam" leading brushed alongside of the "Royal James," and passing up grappled the "Loyal London," setting her on fire. Two other ships following successively set fire to the "Royal James" and "Royal Oak," and afterwards, as it was seen that the "James" and the "London" were not burning well, the remaining two fire-ships were sent to complete their destruction. The scene at this time, while these eight ships were blazing fiercely on a June afternoon, must have been imposing in the extreme, though certainly, in the words of Evelyn, "as dreadful a spectacle as Englishmen ever saw, and a dishonour never to be wiped off."

Thus ignominiously perished from the Navy List three of our finest ships. It is true that only the exposed portions to the water-line were completely burned, and it was found practicable afterwards to rebuild them on the foundation of their old timbers, but thus restored they can hardly be considered as the same vessels. It is amusing to read the account given of the day's proceedings in the "London Gazette," and to note the calm way in which it was attempted to slur over the disaster by magnifying the petty resistance of Upnor and the batteries, in neither of which does there appear, by the most reliable accounts, to have been a single man killed or wounded. The account is as follows:—"On Thursday, the 13th, they (the Dutch) advanced with six men-of-war and five fire-ships, and came up towards Upnor, but were so warmly entertained by Major Scott, who commanded there, and on the other side by Sir Edward Spragge, from the battery at the shore, that, after much damages received by them, in the shattering of their ships, in sinking several of their long boats manned out by them, in the great number of their men killed, and some prisoners taken, they were at the last forced to retire, having in this attempt spent in vain two of their fire-ships, which attempted the 'Royal Oak,' but were forced off and burnt down without effect, but a third had its effect, the two others coming also aboard the 'Royal James' and 'Loyal London,' which are much injured by the fire."

Thus ends the story of the Dutch operations in the Medway, for though as long as their ships remained in the vicinity they kept complete command and possession of the river, nothing more of importance was effected beyond landing from time to time and carrying off such provisions as were necessary for the health of the fleet. To their honour it must be stated that in all these descents they behaved with the greatest kindness and humanity, not wantonly destroying houses and farm produce, the property of peaceful inhabitants, as was too often the custom in the wars of the times, and for which a precedent had been so lately afforded by our own forces on the Dutch coast in the previous years. Referring to this good conduct of the Dutch a writer of the period says that—"It is of great honour to those of them that did go on shore, that though they went in fear of their lives and were some of them killed, yet they killed none of our people nor plundered their houses, but did take some things of easy carriage and left the rest, and not a house burned, and our own soldiers are far more terrible to the people of the country towns than the Dutch themselves."

The discipline of the Dutch fleet seems to have been excellent. It has been seen how severe was De Ruyter in the case of Van Braakel for allowing a single boat's crew to land, and other instances of the manner in which good behaviour was enforced are not wanting. In one case, to show the severity of punishment inflicted, some two or three seamen who had been caught pillaging, while landed with one of the foraging parties, were tried by court-martial, and each sentenced to be thrown three times from the yardarm as well as to receive 150 lashes apiece, a punishment which it is hardly conceivable a man could bear in these days.

In reviewing the whole enterprise, it must be said that the Dutch had every reason to be proud of their victory.

They had successfully invaded the territory of the Power which had for so long held command of the sea, and had inflicted so many defeats and indignities on their Navy. They had sailed up a narrow and to them unknown river with a large squadron, and had attacked and forced the chain and batteries defending a most important Dockyard.

They had burnt six large men-of-war, and had carried off two more as prizes, besides taking many prisoners, and all this had been effected without the loss of a single vessel, except the fire-ships, and with only some thirty men killed and wounded. The success of the attack depended largely on its being promptly executed, so that it should partake as much as possible of the nature of a surprise, and they certainly did act with decision and vigour. No time was wasted after the capture of Sheerness, the strictest discipline was enforced, and the ships worked up and down a difficult river in a way that reflected the greatest credit on the seamanship of both Officers and men. From first to last everything seems to have gone off without a hitch, and to have been well planned and bravely executed.

As soon as possible De Ruyter sent his two prizes, the "Royal Charles" and the "Unity," together with the prisoners, to Holland, under the command of Van Braakel.

The news of the victory was received by the Dutch nation with the greatest rejoicing and enthusiasm. Thousands of people came down to Helvetsluis to witness the arrival of the ships. Van Braakel was feted and courted, he and his ships' company receiving large rewards in money, and honours and praise were lavished upon all. De Ruyter and Van Gent were each presented with a gold cup, and other pieces of plate, not, it was said, that these rewards could in any manner equal the service they had rendered to the State, but as a mark of the appreciation of their fellow countrymen, who felt that for such men this would be of more value than anything else they could bestow.

Before concluding this account, it would be interesting if the name of the old ship discovered in 1876 could be positively determined. She was found, as previously stated, during the excavations for the new basins, beneath a deposit of 15 feet of mud, in the bend of the river near the east entrance to St. Mary's Creek. She was stoutly and strongly built of oak, double-fastened with trenails and iron bolts. In her midship section, rising from alternate truss pieces in the bilge were strong cross timbers extending right across the ship, and forming a cross in the middle line, known by the name of St. Andrew's crosses, which must have considerably added to the strength of the structure. From her position, and knowing what we do of the history of the action, it would be natural to suppose that she might be one of the two guard-ships which were defending the chain, and as it is known that these ships were Dutch prizes, it will be expected that some traces of foreign workmanship would remain to confirm this supposition. We do find unmistakable signs of foreign build in her structure, while, as regards her armament, though most of the guns found were English, still some have been pronounced to be Dutch. The guns discovered were 21 in number, all of cast iron, and varying in calibre from $5\frac{1}{4}$ to $3\frac{1}{2}$ inches, the heaviest weighing 40 cwt. They all appear at first to be of like construction, but on examination are found to be not all marked in the same manner. While some of them carry a device, which, though rather obliterated, is considered to be a representation of the Tudor rose and crown, others bearing a cypher have been pronounced of Dutch manufacture, the cypher representing, it is believed, the following words: "Vereenigde Oost Indische Compagnie," United East India Company (see Plate). The dimensions of the "Charles V" and "Mathias," as

given in "A General Register of all Vessels in the Royal Navy from 1660 to 1675" (Rawl. MSS., A. 195, Bodleian Library), are as follows:—

Name.	Rate.	Breadth by beam.	Length by keel.	Tons.	Draft.	Guns.	
						Peace.	War.
" Mathias "	4th	32'	108'	588	16' 6"	44	52
" Charles V " ..	4th	32'	102'	600	16 0	44	52

Those of the ship discovered are, length (supposed) 107 feet, breadth 32 feet, tonnage (supposed) 700 O.M. Practically the two first ships are sisters, and as the dimensions of the old ship found agree very well with either, we may suppose her to be one or the other. In attempting to decide which of the two, we have the following points to guide us:—

(1.) We are told in the Dutch accounts that "the 'Charles V,' after burning all day, blew up on the following night," whereas in the same account it is only mentioned of the "Mathias" that she was "burnt."

The old ship found had undoubtedly been blown up, evidenced by her after-part being missing, and by the position of the guns scattered around her.

(2.) Norman's narrative (Rawl. MSS., Bodleian Library) has the following:—"Charles V" was taken by the enemy in the smoke of some of their fire-ships that attempted her, and what became of her afterwards is not certainly known;" whereas he says "'Mathias' ended her days between the fire-ships at the chaine after a sharp dispute with ye enemy."

From this it appears that on August 7th, twenty-five days after the action, the fate of "Charles V" was unknown, whereas the burnt wreck of the "Mathias" probably remained for identification.

(3.) As the "Charles V" was captured in 1665, it would seem more likely that she should still have some Dutch guns on board than the "Mathias," which ship was taken in 1653, fourteen years previously.

These three reasons, though not conclusive, suggest to me that the old ship found was no other than the "Charles V." If so, it is probable that after being set on fire at the chain, and her moorings burnt through, she drifted up with the tide to the entrance of St. Mary's Creek, where, according to the Dutch narrative, she blew up on the following night, and probably sank, her position remaining uncertain till she was accidentally discovered 209 years afterwards.

LIST OF SHIPS, showing their Disposition after the Action, as given in
Rawl. MSS. A. 195, fol. 163.

Chatham River Narrative of Richard Tyler.

Dolphin			
Barbadoes Merchant			
Vnicorne			
John and Sarah			
Constant John			
Edward and Eve			
The Hinde			
fortune doggerboate			
Crowne & Brill Hulke	....		Burnt by the enemy.

Wednesday	Mathias	Guard shippes burnt by the enemy, and most of the men lost. Burnt by the enemy. Taken by the enemy.
12.	Charles the 5th	
	Sancta Maria	
	Royall Charles	
Thursday.	Vnity	
	Royall Oake	Burnt by the enemy ; not a man lost nor hurt but one man on a Hill.
	Loyal London	
	Royall James	
	Royall Katherine	Below y ^e Docke
	St. George	Against y ^e Rope ya ^d
	Victory	Against y ^e Church
	Munnouth	
	Vangard	
	Rainbow	
	Vnicorne	Against Chatham towne.
	Tryumph	
	Helderston	
	Golden Rutter	
	Henry	A shoare at Rochester bridge.
	Old James	
	Princes	In the Two Dockes.
	2 Pleasue Boates	
		Through Bridge.
		Safe.



NAMES OF MEMBERS who joined the Institution between the 1st July and
the 30th September, 1885.

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Saltren-Willett, A. J., Lieut. R.A.	Lyon, N. J., Lieut. 4th Bn. Roy. Sussex Regt.
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OCCASIONAL PAPERS.

This portion of the Number is reserved for Articles, either Original or Compiled, on Professional Subjects connected with Foreign Naval and Military matters; also for Notices of Professional Books, either Foreign or English.

It is requested that communications or books for review may be addressed to Colonel Lonsdale Hale, at the Royal United Service Institution, Whitehall Yard, London, S.W.

SO-CALLED NAVAL QUESTIONS.

Reply to an Article of the "Revue des Deux Mondes," "Torpilleurs et Canonnières," by a NAVAL OFFICER.

(For the following article, which has been written in March, 1885, by a Flag Officer in the Navy of a Foreign Power, we are indebted to the kind offices of the Rev. Mr. Harbord, Chaplain of the Fleet.)

THE "Revue des Deux Mondes" of the 15th December last gives us an essay under the title "La Réforme de la Marine," calculated to raise serious thoughts on certain so-called questions of the day. We say "so-called" because at the present time there is scarcely any department, whether it be connected with home or foreign politics, political economy, church, war, or education, social questions, protection or free-trade, Adam Smith or Frederick List, self-help or state-help, or anything, in short, which could not be brought under the heading of "Questions of the Day." And, in these times of rapid transition, opinions clash more violently than formerly; doing away with the past is the order of the day, and the only point where we disagree, or seem to disagree, is the method, or *modus operandi*, best adapted for the destructive propensities of mankind.

The article, on which we have to offer some reflections, assumes a tone of earnest warning. The author, M. Gabriel Charmes, in Cassandra tone, asks the really important question, How long are we intent upon ignoring the clearest signs of the times, still meeting the warnings of a free and rapid progress with scorn and contempt? He especially submits the question to the tribunal of the seemingly blind rulers of his own country, addresses his own France, which, as far as naval policy is concerned, in his opinion, is on the road to an unfathomable abyss.

He refers to what, in his opinion, is the objectionable system of ironclad shipbuilding, obstinately upheld in the French as well as in other navies, in spite of the clearest signs of the times.

Under "Clear Signs of the Times" he indicates in the first place the torpedo-boats, which have been brought to a comparative perfection of late in propelling self-acting torpedoes. And secondly, he indicates vessels which,

in larger numbers but of smaller dimensions and of inferior armament, he wishes to substitute for ships and monster guns.

"Administrez c'est prévoir," and we may agree with M. Gabriel Charmes thus far, even if we do not follow him into all the details of his arguments ; these, of course, must have primary reference to diversity of national standpoint, which for us is a different one from the French, while the latter differs from that of England, of Russia, of Italy, and of all countries in which the possession of a more or less extended coast-line necessitates some kind of naval policy.

We are writing in a country where the chapter of maritime policy is but of recent date ; we are justified in saying "recent," although it has occupied nearly the whole of a generation.

In spite of apparent popularity, the Navy is an institution which, from all sides, from all parties—and alas ! in our everyday questions we must incessantly speak of parties—is looked at with a kind of timid apprehension, for, fond as we are of ideal aims, we are no less timid as to financial results.

With much reason the author of the said article criticizes the disparaging view which pervades current public opinion with regard to the importance of modern fleets. Since Trafalgar there have been hardly anything but armies opposed to each other ; by them alone great conflicts had been decided, sometimes even notwithstanding the naval superiority of the vanquished. Why, then (was the outcry everywhere) this dissipating of force in favour of an institution and a fighting instrument which, in such momentous wars, has at best done nothing except to play the part of an ornament, nay, a luxury ? For, if it is really the case that during the late Danish war two miserable wooden frigates, blockading the coast of Sleswick, were enabled to keep a whole Division of the Prussian Army in check for several consecutive months, yet there is no doubt of this having had not the slightest influence on the final decision and conclusion of peace. For the vanquished it is but human first of all to lay a healing hand on the spot which has had to endure the severest blow, and where the wound is deepest ; and the conqueror will feel inclined to look with some sort of scorn at the weapon which, as things are, has had no share in bringing about the decision. Not till the resuscitation of the Colonial policy had the current of public opinion in France taken a favourable turn towards the affairs of the Navy, and we may well applaud the writer of the "*Revue*" article, when, disdaining all other usefulness, he with emphasis proclaims : "L'instrument nécessaire de la politique coloniale c'est la marine !"

A similar reproach for neglect of their Navy the author equally brings against England ; and, reasoning from different pre-suppositions, finds himself in accord with English public opinion, excited as it now is against the naval policy of its own country.

It does not afford too favourable a view of the author's ulterior deductions, that he makes the famous fiction of the "Battle of Dorking" the starting point for his conclusions. That legend has done its duty, and is not entitled to further honours.

It is astonishing, indeed, while M. Gabriel Charmes censures the naval policy of his country for its shortsighted administration in matters of "prévoir"—for too much conservatism, extravagance in building ironclads—in England excitement is brought to a climax for the very opposite reasons, and the Administration is censured for not building ironclads enough.

However, it is not the neglect which he censures, but the wrong way of proceeding, and which, to his thinking, certainly leads to an abyss.

With scarcely less approbation than interest, are we enabled to follow his pre-suppositions ; what he brings forward is not quite new, but it is an indisputable merit to say it again and again, for even popularity does not always

prevent oblivion. It can, indeed, hardly be denied that popularity may engender dangers damaging to the vitality of an institution. That is easily explained ; popularity and idealism are near relatives, and in a country where it has become almost traditional to affix to an institution the badge of an expensive luxury, mere popularity is not sufficient to entitle it to legitimate existence.

Not long since a French Minister of the Navy made the very appropriate remark : "La marine n'est un luxe que pour les états qui ne savent pas s'en servir." We do not think we are wrong in believing it was a Minister, but at any rate such an error may be excused ; the remark is worthy of the inspiration of so competent a position, and whoever said it would have been worthy of the place.

Downright unpopular the Navy has scarcely been in any country, least of all in the country claiming the traditional empire of the sea ; and yet it is interesting to observe what difficulties, nay even what indifference, additional money-claims have to encounter. That periods of momentary naval panics, like the present, have to be expected is a matter of course. But, generally speaking, the question might well be asked, whether any one remembers a really full house at St. Stephen's when a debate on the Navy was the order of the day ?

It may be objected that with us matters are very different ; but with us popularity also is of a very different stamp. Here the fleet has not yet succeeded in establishing its equal birthright with the other state element of military power, and has been left committed to its own popularity.

In the productions even of modern military authors the opinion, or something like it, is occasionally entertained, that the sea is to a certain extent the boundary of all rational and practical strategy. As mentioned before, warfare of modern date appears to sanction such a view to a certain degree, and this idea is brought into prominence by M. Gabriel Charnes in his "Revue" article. Fleets have been performing but auxiliary work, and such auxiliary work is withdrawn so completely from the eyes of the multitude fond of witnessing warlike proceedings, that to a large part of the public it might as well not exist at all.

And there is, indeed, nothing more natural. Is there anybody who has not had occasion to observe how hearts beat higher when, autumn manoeuvres over, an infantry battalion returns into garrison ? Fancy a few squadrons of cavalry in addition, the horses' hoofs merrily clattering over the pavement, and the effect is overpowering, even for one who only the day before has been listening to a radical speech against the barracks in particular and military prestige in general.

How very different does the corresponding picture present itself in the Navy ! Anybody wishing to trouble himself about it may follow naval movements abroad in the papers. The Admiralty furnishes information, and the Post Office provides fairly for family correspondence. Any who has friends or relations will get letters to read, and in some smaller towns you can see such literary productions circulating as town talk. Generally speaking, so ends all the fuss made about it.

The departure and return of a ship, or indeed a squadron, goes off, as far as eye and ear of bystanders are concerned, with great tranquillity. Some black clouds of smoke about the harbour, boats going to and fro, under certain conditions some firing of salutes, some straggling observers on the beach, the noise of escaping steam, the boatswain's whistle at weighing anchors, and a quarter of an hour later it is as if nothing whatever had happened. Even abroad matters generally take a very smooth course, if we disregard the amount of gunpowder which is spent upon the altar of diplomatic and military ceremonial. Even incidents of some importance like those lately reported

from the West Coast of Africa are hardly apt to induce much conversation. The noisy part of the life and bustle that develops itself in blue water, in fierce opposition to the wild, unfettered elements, is only read in the "feuilletons" of newspapers, and as there are many sensible people who never read "feuilletons," even that has no great influence, and as finally the Post Office, though it can do a great deal, yet with all its smartness and celerity it cannot annihilate distance, and the shuddering tales of storms and roaring waves are apt to be too stale to attract a fair share of justice.

Such is the case now, and such it has ever been. When in the early days of the century war rather unexpectedly broke out with England and Sweden, the news of so many of our merchant ships being captured at sea created general astonishment. A well-known writer of those times, a Captain v. d. Marwitz, says in his memoirs : "Nobody had, indeed, been aware that we were in possession of such a brisk trade." Not less than twenty years elapsed between the time, when a kingdom of somewhat more than two millions inhabitants was enabled to stop the whole of the trans-oceanic trade of the German Confederation, and the days when a first-rate naval Power, though completely beaten on shore, was, notwithstanding, enabled to do the very same thing. Subsequently there has arisen a complete system for the establishment of a Navy (Flotten-Gründungs-Plan), and the creation of a fleet which answered, as it were, the exigencies of the time. So far everything took a satisfactory course, and even in the German Empire there was no room left for the question put to his own country by a French Admiral : "La politique, avec ses ombrages, entravera-t-elle toujours notre education de marins ?"

All this appears like digression, but in reality it is not, because our national point of view is different, and, though the objects are the same, there is a considerable variance of traditions. In what way we are to grapple with those traditions, how we are to treat the fits and starts of public opinion, is the object aimed at by the "Revue des Deux Mondes" article, and constitutes also the object of these our reflections.

It was not quite irrelevant to have said a few words concerning the relations between our current public opinions and maritime affairs, otherwise a great deal of the above may justly be considered idle reflection. We are bound to concede that the greater part of the public has not been able to follow the historical process shown in the transformation of fleets during the past and present century. It is well known that warfare at sea essentially consists in a series of single, rather disconnected battles, and single actions scattered over the wide face of the ocean ; that for regular battles the fighting implements have consisted in tactical units of large dimensions, whereas the majority of single actions were encounters of cruisers and ships of smaller size ; and that in both instances of naval warfare, second to personal bravery, artillery had the main part of the performance.

Of the earlier nature of those contests even laymen nowadays very well know how among the warlike aptitudes of the man-of-war's man, besides artillery, a most prominent part consisted in seamanship, the management and handling of a ship's masts and sails, and a great number and variety of things withdrawn from the inexperienced layman's eye and knowledge—things which played a part of no less importance than the gunnery of those actions. Steam has done away with a great part of that state of things ; but while it guarantees the certainty of motion, at the same time it calls for an amount of promptitude and readiness of action on the part of the individual man such as was never required in former days.

The importance of artillery, however, has undergone no change, although nearly half a century has been at work defending the ship's sides with iron-plated armour of ever-increasing thickness, and thus conducting to its depreci-

ation. Such a result was not possible, as artillery was proved to be capable of development to an extent beyond every anticipation.

During nearly the whole of the previous century there was hardly any improvement in this respect worth speaking of, until about 100 years ago the introduction of carronades created a larger share of attention; it led to a gradual increase of calibre; from that to Paixhan guns; later on the introduction of steam into the Navy led to heavy shell-guns throwing solid shot of large size, until rifled ordnance was adopted, which at last brought technical progress to a state of perfection which enabled it to produce the monstrous ordnance of the present day.

The rapid advance in plating ships with iron and steel at the same time gave an accelerating impulse to gunnery progress and *vice versa*. There has been no lack of warning voices at this restless forward movement in a ruinous direction, but ever and ever one had to bring home to one's mind, that competition in the production of war implements will not leave room for the abstract, that you will have to run the race or be thrown out of the race-course. Leaving the race-course means for a great Power, however, degradation to insignificance in the scale of military importance.

Even within the province of iron plating there was the same reluctance, the same opposition to the universal current. At first the question turned upon protection against the immensely-grown bursting effect of shells; but the demand rose to protection against every species of projectile, and even the efficiency of shells grew to a degree of perfection which scarcely anybody had anticipated.

The primary consequence of the advance in both spheres was the enormous growth in the dimensions of the ship entrusted with the part of tactical unit for naval battles. But even this constant growth had a result, which endowed the tactical and strategical faculties of such a ship with a special value, which it had not possessed before; for it did not only raise the speed, but also the continuance of speed, a result which contradicted our previous anticipations, for there was a belief that the specific gravity of iron involved heaviness but no increase in swiftness, and it was generally overlooked that only the structural composition of a material, not its other quality or specific gravity, has any concern with naval architecture.

Accompanying this there came an improvement of engines and propellers, which, in development of force as well as economy of fuel and lasting speed, increased the tactical properties and the strategical value of a ship to a high degree.

While science and technics exerted themselves in this way to improve the individual ship, the tactical unit for naval encounters in the old sense, the submarine element succeeded in coming to the foreground; the American War having especially shown some good, although inconsiderable, results with it. Contact and "strew mines" play but an insubordinate part in our present arrangements. Not so the fish-torpedo. Contemporary maritime literature and the "Revue" article in question seem to make the fish-torpedo the true reformer of fleets. The very genesis of ironclads had evoked an opposition increasing in intensity with every step forward, and which has now—for those who can believe it—arrived at a point to deal the death-blow to that swindling infatuation of ironclad folly.

To live at a rapid pace, and cut ourselves off from the past, is the fashion of the day; cold blood and quiet circumspection have a smack of barren conservatism. "L'enthousiasme des Allemands pour la torpille" pervades—a probable consequence of Skiernewiece—also the Court Chancery at Vienna, and those great Powers have both renounced the future building of ironclad monsters, if we may believe the information the "Revue" article conveys.

If the article means that Austrian naval policy has been influenced by

"in tigation de l'Allemagne," we cannot quite believe the assertion. The Imperial address to Tegethoff's companion in arms after the fleet evolutions off Pola did not seem to indicate any systematic disbelief in the traditions of Lissa renown. Even the character of those evolutions, the "close order of battle," accentuated more than anywhere else, will not indicate similar inclinations on the part of the Viennese Navy Department.

A ship covered with armour for protection and defence, carrying gun, ram, and torpedo for defiance, with powerful propeller and machinery for her movements, with abundant provision of fuel for independence and duration of speed, an individual with a free choice to go in search of her antagonist, unrestricted to place, fine weather, or the state of the sea, such is in substance that "*unité de combat*," as Admiral Jurien, in his article "*Les Grandes Flotilles*," describes it, the indispensable instrument for maritime combat.

To cultivate offensive elements in warfare is nowhere more indispensable than in naval strategy, but nowhere do we find these elements less represented, than in vessels, which are perfect for the defence of ports and mouths of rivers, but helpless for general warfare upon the high seas; and the praise of these vessels by the daily press is carried to a most dangerous degree.

It is indeed astonishing to observe the speculative way of drawing conclusions from practices in time of peace and sham fights, where fishing vessels are employed launching torpedoes against a Russian flag-ship, where the latter is nominally annihilated; where, in another place, viz., Danzig, the smoke of gunpowder is so opaque, confusion so perfect, as to make scouts and sentries fire upon harmless spectators. Out of ten torpedo-boat attacks, nine have succeeded. What a brilliant result! Woe, then, to the Administration that leaves such an evident symptom of a new epoch unobserved and unheeded, nay, lets it even pass with a mere shrug of the shoulders.

Such is the view of M. Gabriel Charmes, and as he appears to be afraid his Cassandra voice might be left unheard in his own country, he appeals to the wise superiority of the two great Powers in the middle of Europe. That there is some slight justification for scepticism at such an appeal we have already observed. For anybody not quite satisfied, Lord Northbrook's remark is cited, a remark, to be sure, hitherto unknown in wider circles, and where, in other words, he is made to say, England was rich enough to build a number of useless ironclads in addition to the actual requirements of naval warfare.

Of course, nobody will deny that England is rich, but if it is intended to describe her as so rich as to be able to spend numberless millions of pounds sterling in useless naval architecture, and if M. Gabriel Charmes uttered such views in England, he would in all probability be sent to the "Marines," and would hardly find belief even there.

Without hesitation we may be well pleased with the praise bestowed upon the "admirable constructeur" of the much-vaunted "torpilleurs" Nos. 63 and 64, a praise earned by those vessels on account of their excellent behaviour on a windy day off the Hyères. We may also share the author's regret that the new order which the French Government has given him does not go beyond seven. The manufacturer at Elbing has a different story. We cannot, however, admit, that their actual behaviour, and the bold expectations therefrom, can make them anything but auxiliary tactical instruments, very useful under certain conditions.

There are few things more clearly established than this, that in warfare the most simple is always the best, but that, at the same time, the retention and limitation to it are most difficult to obtain.

If the accumulation of warlike attributes in one and the same tactical unit, the combination of specialities in one and the same ship, are condemned, the viciousness of such process is theoretically and practically merely

apparent. A tactical unit intended for battle upon the sea, of all battle-fields the most simple, demands combination of every speciality, but in simplest and narrowest shape and limits. In this case "division of labour" means "complexity." There is no plainer ground than the sea, none more unlimited for strategic operations. Much more extensively than in land warfare, the tactical unit (the individual ship) is expected to serve all imaginable operations, and to undertake them, whether for offence or defence. And there the idea of the "division de travail," the "Revue" article making it the starting point of his reflections, has its natural limit.

The very simplest economy of strength and power implies, that the same tactical body, whose offensive power lies in its weight of artillery and moving force of engines, may possess a weapon which, if skilfully handled, excels all others in destructive power. Can this claim be established either for the ram or the torpedo?

In this respect every division of labour results in complication of warfare. Supplying the gun, the ram, the torpedo, each with a separate commanding head, with a crew, with machinery, and everything else, is surely a greater complication than to have the three implements under one head with thrice as strong machinery and moving power.

The movable force (distinguished from the immovable by independence of its own shore) which does not confine itself to defensive operations on the sea its proper seat of war, but in true recognition of its destination, searches out and attacks the enemy in advance, is not represented by dismembered specialities, but culminates in the "*unité de combat*" which by nautical superiority upon the open ocean scorns all varieties of place, time, and weather, and annihilates everything that may be opposed by any combination of antagonists.

If the "Revue" article appeals to a remark of Admiral Aube, when recommending the retention of Rochefort as a military post, that "a squadron of more or less numerous ironclads had ceased to express the naval force of a country," this does not affect the question at issue. Besides, the Admiral has not omitted in another place to express his opinion that the "*empire de la mer*" should undoubtedly belong to the strongest ironclad fleet.

If the "Revue" article further appeals to the late Marine Minister Gougeard, when he calls it absurd to wage 12—18,000,000 against the paltry sum of 2—300,000 francs, even that falls to the ground; for the very same authority in other places speaks scornfully of the "*coquilles de noix*," from which such great performances are expected, as "*incapable de tenir réellement la mer et d'affronter les tempêtes*," and he seriously proposes a torpilleur 95 metres long, with a displacement of nearly 2,000 tons.

It may well be asked to what circumstance have we to ascribe the sovereign contempt for the sea-going qualities of naval implements entertained by some people. Is it the method of choosing the summer season for naval evolutions, or an endeavour, as shown by the "Revue" article, to concentrate naval warfare in localized prevention of blockades and mere coast defence, and to immobilize, as it were, the naval forces of the country.

There is, indeed, no other explanation, if results are called sufficient and the vessels described as serviceable for most purposes, though these results are doubtful and dependent on favourable circumstances in ocean navigation.

We presume it to be a mere matter of chance, that the predilection for torpedo-boats, the expenditure of large sums for their exclusive production, is most evident, where summer manœuvres are the order of the day. There is undoubtedly some danger of forming wrong nautical conclusions by means of these kind of manœuvres.

The assertion of the excellent nautical qualities of those vessels may be

ever so much reiterated, still their aptitude for navigating the ocean is idle chimera, especially in the event of warlike operations.

Nobody can deny that every squadron in future will have to make use of the "automobile" torpedo, but it will not be in the form proposed by the "Revue" article, for vessels of that kind will not always be able to follow a squadron, as they lack seaworthiness and lasting engine power.

The capacity of running 1,000 miles at a 10-knot rate will do for a passage, but will not suffice for a cruise of the same length, undertaken for warlike purposes, with a liability of hostile encounters.

In the whole discourse, as is customary nowadays, one important matter is left out of view, viz., man, and his individuality. Arts of war may change, and have changed, as well as means. Technics in their spasmodic phenomena will make the most singular and rapid bounds, their performances growing with increase of demand; but the individuality of man will keep demand within certain limits which cannot be exceeded with impunity.

The author of the "Revue" article narrates and thinks it a startling communication for all professional men, how the torpilleurs Nos. 63 and 64 in the company of a squadron went from Corsica to Algeria, to Tunis and Morocco, how they swept the whole of the western basin of the Mediterranean with the squadron, how they enjoyed a "sécurité complète" and never had any "avaries sérieuses." He does not say that it was summer-time, and "avaries sérieuses" are of rare occurrence in a Mediterranean summer.

But even in a more unfavourable season an equally successful navigation would not have been anything particular for those vessels. A displacement of 45 tons is no trifle, though the distribution of it upon 33 metres in length is no advantage. But this is not the question, and for the mere recognition of their capabilities no French nor English Admiral nor Marine Minister would expose himself to the reproach of short-sightedness and disregard of clear facts.

The question at issue, as the writer of the article puts it, is whether we are justified in substituting these vessels, or a combination of them, for the "tactical unit" as conceived up to the present day. "By no means," can be our only answer. To different reasons we have alluded already; and not the last of them surely is the consideration that here we have to deal with a special kind of machinistic war implement, which will not easily adapt itself to the individuality of average mankind.

To the number of calls upon human organism, having to overcome all the unavoidable frictions of maritime existence, there now comes the demand, to grapple with mechanism delicate beyond measure.

Nowhere is the amphibious nature of the nervous system "inclining with one side to matter, with the other to mind," subjected to severer trial than in the various frictions of maritime warfare, and it is a mistake to let the centre of gravity of war instruments turn upon mere machinery.

It is always wrong to place technics out of balance with the warlike element as developed in human nature. The crews of these vessels consist of 12—14 picked men, but even their being picked men proves it unwise to place artillery in the second order, served as it is by average men. And even for picked men the existence on board these vessels with their 45 per cent. "appareil moteur" must in the long run be unendurable, and the most excellent warlike attributes become paralyzed.

And it is never wise to choose picked elements as the standard for arrangement and choice of warlike instruments.

Though we cannot recommend them, we cannot abstain from using such vessels; for the simple reason that the antagonist must be fought with the same weapons, which he brings into the field. There is no doubt, that squadrons must have torpedo-boats with them, but that they should be replaced by

them is decidedly impossible. It may be imaginable, to see the performances of cavalry patrols with petards and dynamite cartridges, or of sappers with earth torpedoes, grow in importance, but it cannot be supposed, that therefore battalions will ever become superfluous.

Judicious war science makes no bounds, let temptation be ever so great. And nowhere is it greater than in the sphere of maritime warfare, where technical productiveness plays such an eminent part. To follow its speculative demands with a measured pace, requires all the composure and strength of purpose of a soberminded man. It is idle to reflect what art of war might have come to, if guncotton and dynamite had been invented before gunpowder. Most likely the saltpetre product would have been taken as progress, and the other stuff as objectionable; industry has a predilection for getting hold of what is new, and to exclude, if possible, the old. From the culverin to the monster gun, from the espingole to Hotchkiss, there has been a tedious, toilsome way; but artillery has followed it with steady pace, and stopped, whenever extremes became prominent. It was an extreme when monster guns threatened entirely to supersede small calibres; better judgment kept the upper hand, and so it has come to pass, that middle and small calibres are in fashion again.

With such and similar reflections on the tactical importance of torpedo-boats we must not overlook a consideration to which neither public opinion of the day nor the writer of the "Revue" article pays due regard. There is hardly a disease, which does not incorporate some slight indication of its cure. Against effect of carronades and increased calibre of shot thicker scantlings were resorted to in ships' sides; against effect of rifled ordnance iron plates were opposed, but the offensive and defensive have never succeeded in exterminating each other, nor can they do so. If invulnerability is out of the question, we may certainly be sure of relative protection, even against ordnance of the heaviest description; and with such relative protection every increase of ordnance will have to reckon.

There is no occasion to be frightened out of one's wits by mere threats; "the hole of 70 square feet" inflicted on the strongest ironclad acts very discouragingly; but whereas Providence has ever taken care not to let trees grow into heaven, so in the art of war we may be sure, that even for protection against torpedoes we have not yet heard the last word.

That the primitive means of the "crinoline" will not be upheld, seems doubtless, because it is wrong in theory, and therefore wrong in practice. We dare not attempt to protect a ship by depriving her of her best qualities in the moment of action, by sacrificing her speed and manoeuvring power. Whether Sir E. J. Reed's "water cushion," which Mr. Barnaby, however, decries, is a step in the right direction, may be left undecided, also the efficiency of Mr. White's Cowes torpedo-hunter; in the long run we may succeed in learning even the weak point of torpedo-boats, and carry those *ad absurdum*, who would stake their all on this one "cheap" card.

The element of strength combined with smallness of target is very near being sacrificed already; their enlargement however, especially in length, becomes an element of weakness, which must not be undervalued. Swiftness leaves nothing to desire, but the manoeuvring power is—as enthusiasts will hardly deny—at a very low point. The vessels to be built in Havre of 200 feet length will scarcely have a grand future; whether the "turn-abouts" of Cowes will answer their purpose may be left undecided; should they succeed, the Thornycroft's and their German *epigones* would be obsolete within a year's time.

What we have thus far said may be summed up as follows:—We cannot but admit that the importance of submarine projectiles entitles them to a lawful rank among war implements, and tactics have to deal with them; but we object

to the view, that tactics based upon artilleristic warfare will have to give way and be substituted by tactics, in which the submarine element has the prominent place.

A weapon throwing a projectile of largest calibre from a steady platform, unlimited as to range of sight, at more than a league's distance, cannot be replaced by a torpedo-gun with its frail and shaky appliances, bound to shortest range, and to aim in one direction, and we arrive at the result, that the fighting element of the ship cannot be replaced by a dozen torpedo-boats, be they the best of their kind. The importance of these vessels is prominent in what we may call stationary defence of ports and neighbouring coasts. Here they are, in default of any other protective means, a weapon in the highest degree dangerous to every aggressor. The movable defence, as allotted to squadrons, which have to hold their position in advance of these vessels, and far beyond the coast-range, these vessels cannot possibly undertake even in large numbers, and industry may just as well stick to their steam-hammers, for, as far as we are able to look into the future, the demand for shot-proof plates and ingots will not decrease as times advance.

And, finally, we beg to consider, that a man as he goes out to fight upon the sea, is a mere "man," which means an individual wanting a minimum of comfort alongside of a maximum of self-sacrifice and abnegation, whose human nature demands its rights, and whose organism we dare not and will not articulate like a crank-wheel with the intricate contrivances of clock-work machinery.

Such is the case, if these kind of fighting instruments form your base of tactics; the majority of the vessels are uninhabitable for mankind, will doom the toughest to perpetual sea-sickness, and are but too apt to deprive him of every tittle of warlike virtue.

Having thus far merely occupied ourselves with the torpedo fleets of M. Gabriel Charmes we must, as we proceed, also give some consideration to his "canonnères." But on account of the peculiarity of the question we must revert to what has taken place in the past.

There was a period when lack of good military ports was considered a great drawback of Prussian and German coasts. Since the acquisition of Kiel and Jade the problem has been solved geographically, and since the consolidation of the German Empire financially.

The time has gone by, when a Minister of War, entrusted with the Navy Department, was considered as doing justice to the "Si vis pacem para bellum" by the promise to keep ships on the stocks, till war broke out, and such times can hardly recur. Nevertheless, we confess to a slight feeling of that anti-naval period, on reading how M. Gabriel Charmes appeals to German and Austrian naval authorities, to discredit ironclads.

Whether an appeal to the German procedure is justified or not, may be left undecided; the justification of that to the Austrians, however, may be doubted. At their evolutions the "ligne serrée" was so accentuated that the Austrian Powers can scarcely be accused of lack of interest for ironclads, for ironclads, that is, as necessary tactical instruments.

But that is not the question at issue in the propositions we have to consider. Here we may agree with much, but there is much also to which we take exception. We may begin by agreeing with M. Gabriel Charmes, that monster guns are, to say the least, a deplorable progress, and that we may well congratulate him who gains his object with smaller ordnance.

But even here a clinging to the abstract is not to be justified, and to adopt some discretionary calibre for convenience sake without regard to the procedure of a possible antagonist, is a mistake. A hundred years since, there was no gun held in greater contempt by gunnery men than the carronade; this was carried to such a degree, that in the classification of ships by the

number of their guns carronades were not counted, yet nobody could refuse their adoption, when England, wishing to have large calibre without much weight, packed her ships full of carronades, which finally led to her artilleristic supremacy, and as a first step to the introduction of Paixhans.

To discredit guns of large calibre the "Revue" article instances the bombardment of Alexandria, and the little effect obtained there against the forts. Most likely the author did not know, and had not read in the "Truth about the Navy" how little prepared the artillery of this British squadron was for such an event. If shells do not explode for want of appropriate powder, and if precision-guns fire at random for want of correct range-tables, overmuch effect is not to be expected. Had there been German or French gunners behind the walls of Mex and Ras-el-Tin, then—so says the article—Admiral Seymour's squadron would have been in a rather awkward position; the gunboat "Condor" alone had real results to show; that with her guns (small as they are in proportion)—her Nordenfelts and boat guns—she had cleared and dismounted embrasures and breastworks of Fort Marabout without any considerable loss to herself.

With regard to this we may simply say here matters might also have been different if German or French gunners had been in Marabout, therefore too much stress must not be laid upon this argument. Least of all does that incident go to prove, that monster guns and ironclads might be replaced by small calibre and gunboats.

The reason, why British shells did not explode, is intimated above; but if they failed doing so, it is a no less remarkable fact, that one of them penetrated the masonry of Ras-el-Tin 6 feet deep, and was picked up undamaged afterwards, a fact worth thinking of to anybody who recommends small calibres.

But then the author of the "Revue" article does not seem to appreciate these occurrences very much, and he is right; for to speak the truth, they make against his argument. Instead of dwelling upon them he condemns attacks of squadrons upon coast fortifications in general; this branch of naval warfare and its artilleristic effect would in future be directed against powder magazines, the interior of embrasures, the towns lying behind the forts, and to the devastation of open roadsteads and their shipping. For those purposes small agile vessels, swift and shallow, armed with comparatively small calibre, would be sufficient. For a ship like the "Amiral Duperré" it would be possible—so says the author of the "Revue" article—to build twenty-five "torpilleurs" and ten gunboats with a collective broadside of 2,400 lbs.

That such a thing is possible, is proved in figures; and "Duperré" being a ship of 10,670 tons displacement, for which not a trifling number of small vessels might be substituted, the account is above criticism. At the same time, it must be clear that the artilleristic result of 2,400 lbs. weight of broadside is insignificant.

It will do for vessels, whose object is the "incendier les arsenaux et les villes"—"à bout portant," and so the author of the "Revue" article actually advocates placing artillery as used in naval warfare in the second or third rank only. Settling a point of principle so expeditiously is a matter for envy, but there is something to say against it.

If between two nations the reciprocal balance of military force comes into question, we cannot discard a thing on account of its mere inconvenience and costliness. The employment of what may be feasible in the extreme case is decisive; where two adversaries are determined to proceed to extremities half measures are out of the question.

If between two nations an agreement was conceivable to fight only with small vessels, the argument would fall to the ground at the very point where either party, determining to conquer, would find no other way to victory than the increase of dimensions.

That in waters inaccessible to large ships victory belongs to the small is evident ; but matters are different in those waters where the same individual, the same man laying his monster gun with precision and composure, upon a steady platform, with a single shot throws the paltry, unsteady craft of his opponent out of action. The ship used in the comparison, the "Duperré," has four guns of 48 tons weight each ; they are mounted on the upper deck "en barbette," and, small sections excepted, they sweep the horizon in every direction ; their firing-range lies 27 feet above the water-line, uninfluenced by the state of the sea, and ever ready for use. If the ship's armament was confined to this then, indeed, the small crowd of twenty-five "torpilleurs" and ten gunboats—if supposed on the spot, which in the majority of cases, where "Duperré" comes into action, may be doubted—might probably be superior, but his size enables him to carry a maindeck armament of fourteen 14-centimetre guns, a number of mitrailleuses, Hotchkiss, and boat-guns, whose efficiency and chances against a host of small craft are not to be undervalued.

To find a correct measure for the amount of those chances is not possible, and the only reliable standard will be the composition of the opposing force, whom, in general, we have to suppose in possession of the same kind of fighting implements.

It is not our intention to follow M. Gabriel Charmes upon his line of argument, because it leads to no tangible result. Of two things, having different forms, which you can buy as fighting instruments for the same outlay, experience only can decide, which is superior to the other for a given case. Even when steam was unknown hosts of insignificant small craft were under certain conditions superior to line-of-battle ships ; under other conditions they would have been run over, or sent to the bottom. If sharpshooters in a mountain pass decimate battalions, it does not follow that mountain passes are, therefore, inaccessible to battalions, and that the latter must be abolished. If, on the other hand, we were to compare the cost of a battalion with the outlay of an equivalent quantity of dynamite cartridges, an amount of devastation might be calculated, that would really be astounding. Against that kind of reasoning, especially considered from a financial point of view, we have principally to say, that it is only calculated to lead public opinion astray on the purport and means of warfare, even if such is not the intention. Such result is the more probable, as the advances of modern technics outstrip each other with growing rapidity, and admit of no check.

Since the first moment that ironclads were adopted, hundreds of pens have been set in motion for their discredit, though there have never been enthusiasts in favour of this novelty, the iron industry excepted ; but "*opertet*" is a plank nail" somebody once said, and we may add "*necessitas*" a steam-hammer. And has it not, indeed, come to pass, that we measure the war efficiency of a nation by the size and number of its steam-hammers ?

As mentioned before it is not material to follow the author of the "Revue" article into the question of financial comparison. The kernel of the question is the importance of maritime war, and the means, not which may, but which must be adopted for carrying it on. Even on this head opinions are divided. Very little trouble has as yet been taken to enlighten people generally about it, for the simple reason that in many things good results are accepted without much concern for causes.

This may seem singular, and to explain it, we can merely refer to the reflections at the commencement of this article.

Upon this question, "What is war?" Clausewitz answers, "It is an act of violence, the application of which has no bounds ; where everyone lays down the law for the other, paving the way for that reciprocal effect, which leads to extremities."

Mutatis mutandis—as it is on shore, so at sea : the disarmament of the adversary, the possession—if you like, under certain conditions, the conquest—of the seat of war, the object ; and the tactical composition of the enemy's fighting means forms the standard of means employed for his subjection.

It is a mistake, to deprive yourself of armour, because there is no chance of your absolutely destroying that of your opponent, and yet such is the advice given by the "Revue" article ; it is a mistake, to have fighting forces, intended as they are for holding and conquering the seat of war, nestled in their interior places of refuge in their own ports, and in this way to surrender the theatre of war to your adversary. As its ulterior consequence, this would lead to a point where the possession of military ports would have to be considered a disadvantage, rather than an advantage. The decisive element for the possession of the sea is the freedom of ports, to send out their ships as they please, and whoever wants to deprive his opponent of such freedom, has in every case to take the opponent's forces in their kind and number as a standard for his own ; he cannot confine himself to batter embrasures with machine-guns, and to set fire to open towns, but will find it indispensable, that he should oppose the fortifications as well as the squadrons of his antagonist with ironclads and heavy ordnance. He will have to do this, as long as he recognizes the duty of maintaining the free use of his own ports and their range, which begins at the enemy's gates.

It seems to be a symptom of the spirit of modern times, simply to disregard the moral element in warfare. At the time of the Crimean campaign the late Lord Dundonald is said to have proposed for destroying the Russian fleet a plan very similar to the modern system of torpedoes. It was rejected, as being considered not in harmony with chivalrous warfare. More sensitive yet on this point seems to have been the last century, for then the crews of fire vessels taken prisoners were liable to be treated on both sides as pirates and simply hanged.

At the commencement of this century a somewhat more practical view seems to have been taken, for the Earl of St. Vincent's remark about Pitt's "foolhardiness" in wishing to adopt Fulton's proposals, teaches no other lesson, than not to sacrifice the hard-won supremacy of artillery warfare to the unchivalrous system of bye-ways. "Foolhardiness" is the term he uses for the encouragement given to a system of warfare, which in his opinion would lower the maritime prestige of England to a level with the weakest naval Power.

But, nowadays, even an Anglo-enthusiast will hardly feel himself in a position to speak of English artilleristic supremacy, and yet it involves a triumph of the artilleristic principle, that neither England nor France has been entrapped into a torpedo enthusiasm, which is dominant almost everywhere. We think there is just as little chance of their being entrapped into the system of "canonnères" which excludes the "cuirassé" as the exclusive tactical unit ; and it does not seem credible that any country would be envied the "première flotte légère du monde," which M. Gabriel Charmes, with such a specious show of reasoning, delights to recommend.

The hitherto existing torpedo-boats are pointed at with sovereign contempt as nearly useless for war purposes ; and this only shows that these vessels are in the developing stage, and that it would be very hazardous, to spend large sums upon them all at once.

Judicious strategy would gain neither by these fleets of "torpilleurs" nor by fleets of gunboats, because the individual vessels, they consist of, are not adapted for combat on the high sea, and because no nation, determined to defend its coasts, is free to renounce such combat.

It is not only the nautical fitness or capability for a passage of somewhat longer duration, which decides the warlike proficiency at sea, but it is also—

waiving the technical and mechanical means—the possibility of an existence, which may in the long run be endurable for human beings. That such is attainable even the larger boats have not yet proved.

For a defence confined to ports and their environs, even some distance seawards, for rivers and inland waters, torpedo-boats are excellent and indispensible; they make a blockade, as hitherto practised, nearly impossible. Their rapid motion, and the violent effect of their projectiles, must be taken into account even by an antagonist far superior in number of fighting means.

And similar, in some respects, is the case with the gunboats, as proposed by the "Revue" article: for combat on the high sea, they lack warlike nautical attributes, their nimble ordnance deprives them of every chance of success against a superior enemy, and their established swiftness, obtained at too great a cost, merely offers them the dubious chance of avoiding a contest altogether.

It has not been our object to state, which calibre in ordnance, and which dimensions in shipbuilding, we think best adapted for a tactical unit in naval warfare; but merely to prove, that it will not do to disregard the gradual improvement in implements of naval warfare, and to substitute another point of view simply at our own pleasure.

The nature of implements for naval warfare has changed considerably; but the change is far from being so radical as not to leave the main decision, as hitherto, in artillery, which means heavy ordnance, because it answers all purposes of offence and defence in by far the simplest way. Its use and handling is the same at sea as it is on shore; the same projectile hits stone, iron-plate, and earthwork; its effect originates from the same kind of gas development, and the rudimentary elements of that effect, with their main factor of hitting capacity, are essentially the same, and have remained so from olden time up to the present day. The steady eye, unstirring foot, and determined hand, give shot its importance, now as ever, be the platform "en barbette," in a turret, or casemate, let the barrel be a boat-gun, or one of those modern gigantic cannon of more than 100 tons weight.

The overpowering force and destructive effect of guncotton is, wherever employed, unmistakable; it cannot and will not be undervalued; its employment is indispensable, either for offensive or defensive warfare, but the decisive issue will ever be left to large projectiles and heavy powder charges. The direct effect of shot above will never be displaced by the indirect one under water, because the former has the advantage of simplicity and greater power of repetition.

Besides self-acting torpedoes, modern tactics cannot dispense with heavy ordnance, and therefore attack, as well as defence, will have to use the calumniated ironclad as a tactical fighting instrument, "par excellence," as it has, up to the present time, been considered a necessity.

To use it successfully, it is necessary to follow the improvements of the times, and not to leave the day's issue to obsolete individual ships. The favourite expedient of the "Fata viam invenient," the postponing of one's decision: "Ce moyen commode de ne rien faire," as Admiral Aube significantly remarks, is fatal in such matters.

The system adopted by the principal naval Powers in building substantial ships for combat on the high seas cannot be thrown aside with impunity, and far off may yet be the day, when these respectable instruments of an inventive period will be resorted to merely as submerged means of defence for useless naval ports.

And useless, nay even dangerous points of attraction for hostile attack naval ports would become, and their abolition would have to be entertained, if heavy artillery, with all its means of defence and defiance, were to vanish

from the sea, as a first make-believe stepping-stone for the millennium of peace.

The diminution in number of ships forming the fleets of the present day, has been advanced as a token of weakness in the present system of ironclads. And it is well worth while to ask how this has come to pass. There are several reasons for it.

At a time when not so much the weight of shot, as the "hail" of them, led to decisive issue, when braces, yards, and sails were the paramount means for directing a ship's motions, when war history of even the present century had to recount tales of frigates, which in a calm were propelled by oars, at such a time it was not expedient to go beyond certain limits in ships' dimensions.

And there was no occasion to do so, for the then existing calibres were quite sufficient to kill a number of people sheltered behind wooden ships' sides of a certain thickness. Between one ship and the other, the decision—as far as artillery was concerned—rested with the mere number of guns.

All this underwent a change with the adoption of steam. The protuberant spread of masts and yards gave room to a motive power located in the ship's hold, which imposed an interdict, as it were, on broadsides.

Even up to 1850 there were serious doubts, whether line-of-battle ships could be provided with steam power. But then there appeared, like a phenomenon, in the Crimean war the French two-decker "Napoléon," built by the ingenious Dupuy de Lôme. But what an increase in size! Nelson's celebrated "Agamemnon," a two-decker of 64 guns, had scarcely attained the size of a modern corvette. Here there was a two-decker, a first-class one no doubt, of the size of six "Agamemnons." She was followed in France, as well as in England, by that splendid array of steam line-of-battle ships, whose short-lived existence had but to tell of a few feats during the Crimean war, before they had to give way to monstrous constructions of steel and iron.

Growing armour produced growing guns, and *vice versa* with both of them, as a natural consequence, grew the size of hulls; with the growth of the offensive came an increased demand on tactical power, in vehemence and rapidity of motion, and therefore increased and multiplied propellers. But lately, industry had produced a ship, whose sole tonnage comprised that of the collective British fleet of Elizabeth's time, and the modern ironclad is not far from it. The artilleristic form of broadside disappeared; and where formerly the concentrated broadside of 14—16 guns of a tier emitted a shower of projectiles of 1,000—1,200 lbs. in weight, there now appears the single shot of the same weight and more, not as a shower, but with compact penetrative effect.

If we observe the progressive growth of ships alone in this century, we shall easily perceive, how it followed necessity, and not mere discretion. It is a steady, unswerving aim at compactness, a repugnance to squandering and waste. From Nelson's "Victory" to the "Queen" of 1840, from thence to the "Duke of Wellington" in the Crimean war, and from her to the "Inflexible" of the present system, such a tendency is unmistakable. In other words, it is the subjection of the atmospheric motor, the wind, by steam, with all its attributes and consequences. And this involves, first of all, a considerable increase of hull to receive engines and gear belonging to them, to receive armour for its protection, to replace wood by iron and steel, leading to an unheard-of development of artillery, and to an enormous enlargement of calibre.

If in such a way the individual ship, intended for the line of battle, rose to perfection, a rapid growth of its dimensions was unavoidable; but the collective efficiency of three main elements in tactics, the gun, the ram, and the torpedo, were henceforth secured to each individual in line of battle. The said progress proved favourable also as regards personal economy; for the numbers did not grow in equal proportion with increase of tonnage.

It is necessary, simply to mention these things, not to prove them in figures, the object being merely to show, how the tendency leading to an enlargement of individual ships, and to a reduction of their numbers, has a very good and sensible reason.

And this is the only way to do justice to the principle of the "division de travail" as recommended by the "Revue" article.

The "rayon," or range of one's own coasts, borders on the shores and ports of the enemy; between the former and the latter is the open sea, the fighting ground for ships in line of battle; it is their ground for the part of coast defence allotted to them; they are the first line of defence; in the second we have, according to local requirements, to look for all those specialities which form the stationary coast defence. These are the vessels adapted for shallow waters and narrow inlets, with the different fighting implements distributed amongst them.

If they were to be substituted for the first line, they would be withdrawn from the province to which they belong, and the first line would get fighting means, which are not appropriate for it.

Torpedo-boats would not be fit for this, even if they were to obtain a swiftness reaching to 25 knots, by giving them Belleville boilers and a steam pressure of 15 atmospheres. Supposing even this were obtained, still we may be quite sure, that their fitness for naval warfare would certainly be below zero. A single lucky hit from a revolving-gun would not only do for the boiler, but for the whole vessel, her crew included.

We have thus indicated, we believe, what may be advanced against the arguments and proposals of the article "Torpilleurs et Canonnières." But the same article lays some stress upon the financial part of the question. Especially the writer implies, that the system of torpedo-boats gives an unmistakable advantage to second rank naval Powers.

This is not the place for a discourse on the extent a nation may be obliged to defend its coast, and the country behind the coast. It is an open question by what standard the expenditures might be measured. A statistical attempt we find in a lately published English pamphlet, "The Truth about the Navy." There we find, that measured by value of trade afloat, England and Germany are the Powers which, for their means of naval defence, have the least expenditure in proportion. For England this expenditure amounts to $3\frac{1}{2}d.$ per pound sterling value afloat, for Germany only $2\frac{1}{2}d.$; whereas for France it is $7d.$, for Italy $9d.$, for Russia $8\frac{1}{2}d.$ The comparison changes, if expenditure is measured by tonnage of ships in possession of these countries, which is also the case if arrivals and departures of vessels is taken for a standard; then the change is unfavourable to England; but still the proportion of least expenditure remains for England and Germany compared with other European Powers.

In face of this, the question might well be asked, whether the argument of the "Revue" article—that second rank Powers would derive a great advantage from the possession of numerous torpedo-boats—does not lead to dangerous fallacies. At best it is a superiority upon very artificial foundation; to trust to the mere abstract, is—we may repeat it—a fatal mistake, and it will never answer to coerce an opponent to peace with murderous dynamite, while the naked sword and fully-charged gun-barrel are the weapons he brings into the field.

"Caveant consules!" we may well be justified in saying, and we agree with M. Gabriel Charmes, when he exclaims:

"Qu'on se souvienne, qu'administrer c'est prévoir, et qu'en marine —surtout chez nous—rien ne s'improvise!"

B.

COLONEL v. LÖBELL'S ANNUAL REPORTS UPON THE
CHANGES AND PROGRESS IN MILITARY MATTERS DURING
1884.

By Lieutenant-Colonel H. HILDYARD, Highland Light Infantry.

THE eleventh annual number of Colonel v. Löbell's valuable publication is not behind its predecessors in the variety or interest of its contents. As was the case with the Reports for the year 1883, there have been few important changes to chronicle in the organization of the armies belonging to the greater military Powers.

Germany.

It would almost seem, indeed, if we are to judge by the small space given to the subject by v. Löbell, that the German Empire has arrived at so high a stage of perfection in the matter of military organization and administration, as to admit of little improvement. Several of the few pages devoted to the German Army are occupied with a record of the numerous changes which took place last year in the higher commands, the losses of distinguished Officers by death, and the changes in the distribution of troops in garrison.

In the obituary may be noticed General Herwarth von Bittenfeld, who distinguished himself in 1864 by the capture of Alsen, and two years later commanded the Elbe Army in the campaign in Bohemia. With the sole exception of the Emperor, he could boast of having the longest service of any Officer in the German Army, his commission as Lieutenant dating two years prior to that in which the battle of Waterloo was fought. The services of General v. Wittich, whose death is also recorded, were of a more recent date. As commander of the 22nd Infantry Division in October, 1870, he played a most important part in connection with the attempted relief of Paris by the French Army of the Loire. In that war, of constant marching and frequent engagements, few Generals had the opportunity of acting independently in the manner that fell to the lot of v. Wittich, and by his capacity and energy he succeeded in influencing notably this portion of the campaign.

Seeking perfection in other subjects than organization, the Prussian War Office has determined to modify the existing patterns of helmet, knapsack, and minor details of equipment, with a view of lightening the burden which has to be carried by the soldier in time of war. The importance of this consideration was clearly shown in the war of 1870—71, and that the introduction of any change has been postponed so long, may probably be attributed to an objection on the part of the army to any change in the uniform and equipment that had been identified with so many hardly contested fields.

Competition in design for the several articles is sought for by the offer of substantial prizes varying from 1,000 to 300 marks, which are to be awarded to the patterns fulfilling the combined conditions of lightness, comfort, superior design, and durability. The competition is strictly confined to those belonging to the army and its reserves. With a view to ensuring the attainment of one of the principal objects in the contemplated changes, it is notified

¹ *Jahresberichte über die Veränderungen und Fortschritte im Militärwesen.* 11 Jahrgang, 1884, herausgegeben von H. v. Löbell, Oberst z. Disp.—Berlin, Ernst Siegfried Mittler und Sohn. 1884. Pp. 533; size, 9⁵" x 6⁵" x 1"; weight, 1 lb. 14 oz. Price 8s. 6d.

that any patterns submitted of the helmet, knapsack, water-bottle, or light boots (a second pair, not for marching) which are not appreciably lighter than the existing ones will not be considered at all.

It is not without interest to note the measures taken in the German Army for the training of the Landwehr and Reserve troops; for to the regularity with which this is carried out is to be attributed the efficiency of regiments on mobilization. Such efficiency cannot possibly be attained to, and must not be expected in an army in which the system of a small peace effective and a numerous reserve force is adopted without any provision being made for the regular periodical training of the latter.

The Landwehr and Reserve were called up for a period of twelve days, including the day of joining and departure; but it is in the power of the General commanding or other superior Officer to retain men of the reserve for twenty days where it appears desirable. The Ersatz Reserve were retained on the first occasion of being called up for ten weeks, on the second four weeks, and on the third for a fortnight only.

The numbers of the several arms and branches of the Landwehr and Reserve called up, including non-commissioned officers and hospital attendants, were as follows:—

	Prussia.	Bavaria.
Infantry	93,450	
Rifles	2,700	}
Field artillery	6,300	13,800
Garrison artillery	6,100	900
Pioneers	2,500	900
Railway regiment	450	360
Train	5,046	720
Total	116,546	16,680
Grand total		133,226

The following table gives the numbers of the Ersatz Reserve trained:—

Specification.	1st Exercise.	2nd Exercise.	3rd Exercise.
Infantry	13,338	8,320	7,520
Rifles	360	280	220
Garrison artillery	1,100	900	760
Pioneers	700	560	—
Total, Prussia	15,498	10,000	8,500
Total, Bavaria	2,500	1,500	1,200
Total, Germany	17,998	11,500	9,700
Grand total		39,198	

Belgium.

The necessity for reorganizing the existing system of militia service has been long recognized. By the law in force the contingents of eight years, numbering each 12,000 men, form the active army. But in support of this, no reserve is available, and it has been the effort of successive governments to inaugurate such a scheme as would meet the requirements from a military point of view, and be at the same time acceptable to the country. The task has not been found to be an easy one, and it has led to the settlement of the question being constantly postponed, to the detriment of military efficiency.

Since the striking events of 1870 the "Attack Formation" has had a remarkable fascination for the compilers of drill-books, which has not been even yet exhausted, simple and well known as the principles would seem to be upon which such formations must be based. The system adopted for a battalion by Belgium, and contained in a Provisional Instruction, issued in February last year, may be briefly described as follows :—

Upon the battalion first coming under artillery fire at a maximum range of 4,000 m., it is to be formed in a line of company columns. Each company has a small flag of a different colour, to facilitate marching and serve as a rallying point. The battalion has also a flag which is placed in the centre and serves to keep the direction towards the object of attack.

On entering the dangerous zone of the enemy's artillery fire, which in open ground will be 3,000 m. at the utmost, the battalion forms for attack. The two companies destined for the advanced line form a line of subdivision columns, three to each company. The remaining two companies form the reserve of the battalion.

The subdivision columns of the advanced line deploy, so as to cover the whole front, and after advancing 400 paces they will be disposed in the following manner :—

1st. A first echelon, composed of eight scouts per company, forming two patrols, each led by a non-commissioned officer.

2nd. 200 m. behind these the advanced line formed by the subdivision columns.

Upon reaching the zone of effective musketry fire, at about 1,400 m. from the enemy's position, the following attack formation is adopted :—

1st. The chain of scouts formed as above.

2nd. The advanced line embracing—

(a.) At a distance of 200 m. four sections of skirmishers, being the advanced sections of each of the subdivision columns with the company and battalion flags.

(b.) At 200 m. interval, the line of supports composed of the four rear sections.

(c.) 200 m. in rear the line of company reserves, consisting of the two subdivision columns not included above.

3rd. 400 m. further back are the two remaining companies which form the battalion reserve.

In covered ground these intervals may be so far reduced that the depth of the formation does not exceed 500 m. The battalion moves forward in this formation until the enemy's musketry fire becomes serious, which will be at about 700 m. The line of scouts is now reinforced successively by the chain of skirmishers and the supports moving into it, care being taken not to mix up the subdivisions.

The further advance is then conducted by means of the alternate rushes of companies or, exceptionally, of subdivisions. This advance is continued until the firing line arrives within 300 m. of the enemy's position, the reserve com-

panies closing on it in the meanwhile, so that when halted the right company will be 150 m., the left 300 m. from it. Rapid independent fire then ensues for a few minutes, the right reserve company moves up into the firing line, and the left is kept in hand to act as required ready to meet a counter attack, to hold the position taken or to cover an eventual retreat.

The principle here adopted of keeping the companies and subdivisions as far as possible unmixed is no doubt the correct one. But it is open to doubt whether the numerous successive lines is a wise arrangement ; for the exposure to fire from the depth of the formation will be greater than in a simpler one with a less number of lines having more men in them.

Brazil.

The course of events during the last few years has brought into prominence the military forces and organization of numerous States, regarding which but little had been previously known. This was notably the case in the war between Chili and Peru, and though at the present moment there does not seem to be any prospect of the armed forces of Brazil being called into requisition, the account of them given by von Löbell for the first time may possibly come to be of considerable value.

By the law of 1875 universal obligatory service was inaugurated, comprising a period of six years with the colours and three in the reserve.

The men required are taken by lot, but substitutes are allowed, and, as a matter of fact, of late years a sufficient number have been forthcoming voluntarily for the annual requirements.

The strength of the army in time of peace is 13,528, exclusive of Officers, and it is in course of being raised to 15,000.

On a war footing this number is about doubled, and is distributed amongst the several arms as follows :—

30 battalions infantry of 4 companies.....	18,360
10 regiments cavalry of 4 squadrons	5,920
4 regiments field artillery of 4 batteries	2,024
4 battalions of 6 batteries	2,280
1 battalion pioneers of 8 companies	465
6 sections train.....	600
1 company sanitary troops	51
 Total.....	 29,700

The infantry is armed with the improved Comblain rifle ; the cavalry with the Winchester carbine and Lefacheaux revolver ; the artillery with Krupp and Whitworth guns.

The law further makes service in the National Guard obligatory up to the age of 40 ; but beyond the Officers this force has at present no actual existence.

The first band of the National Guard, as organized on paper, is composed as follows :—

Infantry.....278 battalions ; 14 half-battalions ; 97 companies.

Cavalry114 corps ; 10 companies.

Artillery 11 battalions ; 9 half-battalions ; 15 companies ; 1 section.

The reserve consists of 79 battalions ; 114 half-battalions ; 97 companies ; 57 sections.

Besides the regular forces of Brazil there are a number of military colonies established on the frontier, and providing for a cordon, as a protection against the raids of the adjacent Indian tribes.

Bulgaria.

The national movement continues to be in the ascendant, and notwithstanding the presence of a Russian prince as War Minister, the influence of Russia is still on the decline. This has not prevented General Prince Kantakuzen from helping forward by every means in his power the development of the newly-formed army, which has undergone an extensive reorganization, so far as the infantry is concerned.

The formation of this arm was until last year that of independent *Drusc-hinen* (or battalions), of which there were twenty-four. These have now, by order of October last, been formed into eight regiments, each of three battalions :—

1	Regiment (Prince Alexander), Headquarters, Sofia.	
2	" (Stramsky)	Küstendil.
3	" (Edinsky)	Widdin.
4	" (Plevna)	Lovtscha.
5	" (Danube)	Rustchuk.
6	" (Tirnova)	Tirnova.
7	" (Preslau)	Schumla.
8	" (Primorsky)	Varna.

The peace establishment of the battalion has been raised to 700 men, and the war establishment fixed at 1,000, which gives a total infantry force of 16,800 and 24,000 respectively. To provide for the increase on the peace establishment, 1,000 men have been added to the contingent of recruits.

Sufficient men have further been provided for twenty-four reserve battalions by shortening the term of service with the colours in the years preceding 1884, by which means an abnormally large number have been passed to the reserve.

When the formation of a Bulgarian army was first undertaken by Russia, the whole of the Officers from company commanders upwards were Russians. A movement has now been set on foot for providing the company commanders from Bulgarian Officers, and nearly half of those serving at the beginning of this year were of that nationality.

The approximate strength of the armed forces was on that date as follows :—

Distribution.	Peace.	War.
Infantry	16,800	24,000
Cavalry	1,400	1,400
Artillery	1,560 (4 guns per battery)	2,160 (8 guns per battery)
Field artillery company	180	180
Engineer battalion	880	880
Train column .....	..	2,000
Total	20,820	30,620
Reserve formations .....	..	24,000
Landsturm .....	..	6,000
Total .....	..	30,000
Grand total of forces available in time of war .....	..	60,620

Chili.

The experiences of the war with Peru in 1879 created in Europe a special interest and sympathy with the Chilian Army, which was shown to possess many soldierly qualities. Recruited from the original Indian populations, the men composing it display in action much native pluck and dash, though they are not found easy to deal with in the matter of discipline.

The active army is maintained by means of voluntary enlistment with a bounty of 20 dollars. The National Guard is based upon obligatory service.

The infantry is composed of 10 battalions, having a total strength of 9,040 men, armed with Belgian Comblain rifles, and in the Valparaiso arsenal arms are available for a force of 60,000 men.

The artillery consists of 2 regiments, one of which has 3 brigades of 2 companies, and the other 5 brigades, 4 of field artillery and the fifth of coast artillery for employment in the forts, each brigade consisting of 2 batteries. The total strength is 2,202 men. It is armed partly with Krupp and partly with Armstrong guns.

The cavalry is limited to three regiments, one of Grenadiers, one of Rifles, and the third of Carbineers, with a total strength of 1,500 men. The number is small considering the facilities offered for the formation of this arm by the abundance and high quality of the native horses, and the skill in horsemanship of the natives themselves, which admit of cavalry being utilized to the utmost. It would consequently be simple to increase the strength of this arm considerably.

The regular army numbers on its normal establishment—

Infantry	9,040
Artillery	2,202
Cavalry.....	1,500
<hr/>	

Total 12,742, exclusive of train and other departmental services.

The National Guard has been reorganized since the war, and is now composed as follows:—

1. Infantry.—36 battalions each of 833 men, with the exception of 2 in Santiago and 1 in Valparaiso, each of 1,246 men. Besides these, there are 25 infantry brigades of 419 men and 7 companies of 207 men, formed for the defence of certain territories in Arauco.

The battalions are each formed in 4 companies except the stronger ones, which are of 6 companies. The brigades are each of 2 companies.

The total strength of the infantry is 43,151.

2. Artillery.—This arm is composed of 1 regiment of 937 men in Valparaiso, and 14 artillery brigades of 419, each of 2 companies.

The total strength is 6,599 men.

3. Cavalry.—12 squadrons each of 173 men, the whole of which are drawn from the province of Arauco, numbering in all 2,076.

The total strength of the National Guard is 51,826.

During the war with Peru and Bolivia, a considerable number of infantry battalions, brigades of artillery, and squadrons were mobilized, and took the field in all respects under the same conditions as regular troops, and as late as May, 1883, twenty-nine corps were still embodied and in garrison in Peru, and on the frontier of Bolivia, and in Arauco.

France.

A large share of space in the "Reports" is devoted to the French Army,

which besides being, as is natural, a subject of pre-eminent interest to the military world in Germany, claims, from the numerous and often radical changes effected in it each year, no ordinary share of general attention.

Some progress has been made with the development of the scheme for the formation of a colonial army and the amalgamation of the African troops, adverted to last year.¹ The Bill, as then drafted, has been modified in some particulars as regards the African forces for the occupation of Algeria and Tunis. For instance, the 4 rifle battalions find no place in the formation ; the Algerian tirailleur regiments are to be each of 6 battalions in place of 4 ; only 4 disciplinary companies are included, in place of 5 ; a tenth section has been added to the departmental troops, and some companies of gendarmerie are provided for. The reserve to this force is to be composed, as originally intended, of 8 newly-formed Zouave battalions and 4 batteries, which are to be augmented in case of need by native troops and by the foreign legion.

Colonial Army.

The special colonial force which it has been decided to create under the same scheme for the occupation and defence of other French colonial possessions has been fixed as follows :—

8 regiments of marine infantry, each of 4 battalions and 2 dépôt companies.

1 regiment of Annamite tirailleurs of 4 battalions of 4 companies.

2 regiments of Tonquin tirailleurs, each of 4 battalions.

1 regiment of Senegal tirailleurs of 2 battalions and 2 dépôt companies.

2 companies of Indian sepoys.

2 companies of colonial disciplinary troops.

2 regiments of artillery, each of 14 batteries—3 horse and 11 foot—1 company of artificers, and 1 company of Senegal drivers per regiment.

The colonial troops and their reserves are recruited from volunteers out of the yearly contingent who are engaged for the purpose, and re-engaged men. The whole of the non-commissioned officers and men receive a bounty of from 200 to 300 francs, a rate of pay double the ordinary amount, and after fifteen years' service they are entitled to civil maintenance and a grant of land in the Colonies.

The great advantage of such an organization lies in the fact that it is intended to obviate in the future, when the system shall have been brought into working order, the necessity of employing any of the home troops upon minor expeditions beyond the seas, the serious inconvenience of which has been so frequently experienced by France of late years.

Recruiting.

The number attaining the legal age for the 1883 class was 312,924, being 3,235 more than in the previous year. Of these 139,269 were taken. The remainder were accounted for as follows :—

Dispensation granted on account of being the sole support of family.....	49,428
Dispensation granted provisionally.....	31,292
Fitted for military auxiliary services	15,561
Postponed	38,589
Physically unfit	38,784
Not reported at the proper time	7,997

¹ No. CXXVI of the Journal R.U.S. Inst., page 813 *et seq.*

There were besides 17,398 voluntary engagements, of which 5,795 were for the navy, and there were also 5,152 volunteers for the foreign legion, Algerian tirailleurs, Spahis, and Tunisian mixed companies.

The number of re-engagements was 3,391, being an increase of 672 over that of the previous year.

The contingent was divided as follows :—

	1st Portion.	2nd Portion.	Total.
Class of 1883	92,835	38,481	131,316
Put back in 1882....	8,507	2,627	11,134
" 1881....	3,993	792	4,785
	105,335	41,900	147,235

These were allotted to the several arms and formations as follows :—

	1st Category.	2nd Category.	Total.
Line regiments	57,959	28,945	86,904
Rifle battalions.....	4,905	862	5,765
Zouave regiments.....	1,359	...	1,359
Algerian tirailleurs	100	...	100
African light infantry	3	...	3
Paris sapeurs-pompiers	—	—	—
Foreign legion	2	...	2
Total	64,328	29,807	94,133

Cavalry—1st Category only.

Cuirassiers.....	2,221
Dragoons	4,756
Chasseurs	3,637
Chasseurs d'Afrique.....	535
Hussars	2,144
5 Remount companies	7
Cavalry schools.....	6
Total	13,306

Artillery—

	1st Category.	2nd Category.	Total.
Artillery regiments.....	9,367	6,472	15,839
Pontonniers	746	...	746
Foot artillery battalions....	2,325	2,932	5,257
Artificers and laboratory companies	103	...	103
Total.....	12,541	9,404	21,945

Engineers—

Engineer regiments.....	2,007	612	2,619
20th Engineer Battalion ...	96	...	96
Railway company	80	...	80
Total.....	2,183	612	2,795
Train	1,902	501	2,403
Administrative branches	2,502	400	2,902

Railways and Etappen Stations.

A General Direction for the entire etappen and railway services in the field was created by a Decree of the 7th July, 1884, and will supply what had previously been a serious omission in the organization of the communications for a mobilized army.

At the head of this service, under the Chief of the Staff, is placed a General Officer, with the title of "Director-General of Railways and Etappen," to whom is attached a special staff, a delegation from the superior Military Railway Committee, and a Director of Field Railways. In his hands is placed the direction of the entire etappen and railway services in the territory between the base of operations and the armies.

The base of operations is decided upon by the Minister of War at the commencement of a campaign, in concert with the General commanding the armies. The troops not belonging to the operating armies remain on French territory, and, so far as they are within the sphere of the General Direction, are under the orders of the Director-General, who gives his orders to the Territorial Commanders, and not direct to the troops except under pressing circumstances.

It is the duty of the Chief of the Staff to keep the Director-General informed of every operation undertaken or contemplated; but the latter is given complete independence as to the consequent measures to be taken by him. An important part of the Director-General's duties is to ensure complete co-operation of the railway and etappen officials of the several armies with general headquarters, and with the War Office Railway Committee, and also to keep in communication with the heads of the artillery, engineer, and administrative services, so as to be able to meet their requirements in the arrangement of the railway service. He has also the special duty of regulating the relation of the several railway and etappen officials to one another, the allotment of the lines to the several armies, the selection of the principal etappen stations, and the limitation of the territory in rear of the several operating armies from which they shall respectively draw their supplies.

To each army is appointed a General as Director of Etappen, who is under the Chief of the Staff of that army, and has attached to him an Officer of the General Staff, of artillery, and of engineers; a detachment of military police, and officials of the intendance, civil administration, and etappen troops. His place is with the Army Headquarters, or a day's march in rear, but without interfering with the functions of the communications.

Where an army is operating independently, a General Officer acts as Director of Railways and Etappen, and has attached to him a delegate from the superior Military Railway Committee, and a Direction of field railways in addition to the staff specified above.

The publication of the foregoing Decree, and the experiences gained of late years regarding the subject of military transport, led in October, 1884, to the substitution of new regulations for the transport of troops by rail in place of those of July, 1874. The first part of these relates to ordinary movements by rail, and the entraining and detraining of men and horses in time of peace. The second part is divided into three sections, treating of the arrangements for military railway transport in time of war.

It is stated in "La France Militaire," No. 336, that it has been calculated at the War Office that, on a double line of rail, an infantry division, with its trains, can be despatched in $1\frac{1}{2}$ days, and that a similar time is required for a cavalry division. An army corps without train would occupy $4\frac{2}{3}$ days, and with train $7\frac{1}{2}$ days. Reckoning the rate of locomotion at 25 kilom. an hour, an army corps could be entrained, moved 90 kilom., and detrained, in nine days.

The provisional Instructions of 1878, regarding the etappen service, were replaced in August, 1884, by new ministerial regulations. The task of the etappen service is to secure the communications with the base, to carry out the transport by road and water, and to prepare for all the requirements of the army in the zones lying behind the sphere of operations.

The etappen lines run sometimes together with the railway lines, and a close co-operation between the officials of the two branches is consequently indispensable. The etappen lines leading from the advanced stations of the railway lines to the army are under the undivided control of the etappen Directions acting under the Director-General of Railway and Etappen Lines. There is one of these allotted to each army, the duties of which are to regulate the transport by road and waterways; the defence, occupation, maintenance, construction, and in case of necessity the destruction of these, and of the postal and telegraph lines; the distribution, employment, and supply of the troops allotted to the lines; the situation and supply of the magazines, and the control of the civil administration in the territory occupied by the etappen Directions. To each of these is allotted the General Staff, the etappen command, the civil officials, the artillery command—at the head of which is the Director of the Army Artillery Park; the engineer command of which the Director of the Army Engineer Park acts as Commandant; the intendance with its attached columns, field bakeries, and cattle depôts; the Direction of the sanitary service; the gendarmerie; the post and telegraph services for the etappen.

The duties and sphere of action of each of these officials and formations is carefully defined in the regulations, to which are attached a table giving the details of the *personnel*, which seems amply sufficient in number.

Telegraphs.

A Decree of the 23rd July, 1884, introduced a new organization of the military telegraphs in war and peace. The entire technical *personnel* placed at the disposal of the War Office by the Ministry of Posts and Telegraphs are to receive a military organization, and to enjoy in time of war all the rights of regular troops. After the mobilization has been commenced, none of the officials of these services may resign without the permission of the Minister of War.

The *personnel* will be divided into two portions:—

1st. For the telegraph service with the army who will be allotted to duties with the Directions, the sections with the first line, the telegraph parks, the etappen, railway and fortress sections.

2nd. For the territorial service. The telegraph service with the armies, independent army corps or divisions, is placed under the Chief of the Staff. The *personnel* is recruited from that of the Ministry of Posts and Telegraphs, whether they have already satisfied the obligation of military service or not, from such officials of the above as have already done three years' service with the military telegraphs, and to these are added such as may be attached from the army.

From the commencement of the mobilization they form an integral part of the army, to the laws and regulations of which they are in every respect subject.

The several grades and posts allotted to them are as follows:—

Director of Telegraphs ranking as Lieutenant-Colonel.	
Sub-Director "	Major.
Head of sections "	Captain.
Assistant do. of sections "	Lieutenant.

Head of posts	ranking as	Sub-Lieutenant.
Telegraphist	"	Adjutant.
Head of equipment	"	Maréchal des logis.
Head workman	"	Brigadier.
Workman	"	Private.

With a view to the organization of the telegraph service in time of war, a superior official of the Department of Posts and Telegraphs is accredited to the General commanding each military region. The whole service has its point of centralization with the General Staff of the War Minister, to which is attached a committee composed of superior officials and Officers of all arms, for the purpose of advising on questions connected with military telegraphy.

The several branches of the military telegraphs are inspected annually by a General Officer; but the Minister of Posts and Telegraphs is responsible for seeing by periodical surveys that the *personnel* as well as the *materiel* is maintained in proper working order. The whole of the *personnel* receives during peace time military instruction and such technical training as may be required. The War Office provides the officials and formations with the necessary transport, and arranges with the Postal Department regarding the furnishing and maintenance of the *materiel* and equipment. All the necessary measures for a rapid mobilization of the Directions, sections, and parks, as well as for the practice in the telegraph service, are to be arranged beforehand in each region by the Chief of the Staff and the superior telegraph officials attached to the command.

The uniform of the artillery is worn with a distinguishing badge consisting of a star surrounded by lightning rays, which is worn by all on the képi, and by those officials belonging to the Directions on the collar.

The establishments of the several formations are as follows:—

	1 Section in 1st line.	1 Section in 2nd line.	A telegraph park.
<i>Technical personnel</i> —			
Heads of section.....	1	1	—
Assistant ditto	1	1	1
Heads of posts	2	2	—
Telegraphists	10	25	8
Clerks	6	4	2
Head workmen	6	2	3
Workmen	20	8	9
Orderlies .....	...	6	—
<i>Detachment of train</i> —			
Maréchal des logis.....	1	1	1
Brigadiers	2	2	1
Men	27	13	10
Vehicles	12	5	7
Horses	48	23	37

In time of war the *personnel* of the sections in the 1st line and of the parks may be increased by five telegraphists and ten workmen. Only the superior officials, including the heads of posts, are mounted.

The *personnel* of the General Direction and the Directions is distributed as follows:—

	General Direction.	Directions.
<i>Technical personnel—</i>		
Director.....	1	1
Sub-director.....	1	2
Heads of sections or posts	3	2
Telegraphists and clerks.....	21	2
Head workmen and workmen	10	—
Orderlies	2	3
<i>Detachment of train—</i>		
Officer .....	...	1
Non - commissioned officers and men	12	4
Vehicles.....	5	2
Horses	21	16

Pigeon Post.

Orders have been given for the establishment of central pigeon-post stations at Paris and Langres. These are to be formed on a basis for securing the communication for a period of six months between the more important fortresses. Paris is to be in communication with Mézières, Verdun, Toul, and Langres ; and the latter place also with Belfort, Besançon, and Lyons. None of these are at a greater distance from the place it is to communicate with than 285 kilometres, which should be covered by a pigeon in five hours.

Recruits for the working of these establishments are to be taken exclusively from men who before joining have belonged to a carrier-pigeon association, and they are to be posted to the 1st Regiment of Engineers at Versailles.

Infantry Annual Training.

A War Office circular of November, 1884, promulgated new regulations regarding the training of the annual contingent and the exercise of regiments after their incorporation in the ranks. The training year, which dates from the joining of the contingent to the close of the autumn manœuvres, is divided for this purpose into five periods.

1st Period. $3\frac{1}{2}$ months. Individual instruction of the recruit, drill in squads and half sections ; completion of the instruction of the old soldiers.

The training of the recruit embraces the individual instruction, garrison duty, and preparatory exercises in musketry and gymnastics. The old soldiers are formed into one or more drill companies, according to the strength of the battalion, and exercised in drill and field duties under the battalion commander, and are also practised in individual firing, the construction of field works, and in marching. The cadres are given special instruction during this period in firing, field duties, and company drill.

2nd Period. $1\frac{1}{2}$ to 2 months. Section and half-company drill.

The recruits and old soldiers are drilled together during this period. The training in gymnastics, musketry, and field duties is continued. To these subjects is newly added exercises in judging distance and in entraining horses and loaded wagons, so that the men may have some acquaintance with the subject in the event of a mobilization taking place in the spring.

3rd Period. $1\frac{1}{2}$ months. Company training.

The company is instructed in all branches of its duties. When the strength admits of it, each company is trained independently under its own command-

der ; but where this is not the case, one or two companies are formed in each battalion, and trained under the direction of the battalion commander. Every week a march is to be executed, combined with field manœuvres.

4th Period. 1½ months. Battalion and regimental exercises.

The company is exercised in varied ground, battalion drill practised, and field duties by night. In case of necessity the several battalions of the regiment are formed into one. More than three days are not to be occupied in drilling the regiment in close order, and this is not to be done at all unless two battalions of at least 300 men each can be formed. Musketry is to be continued ; the attack and defence of fortified positions and field duties practised.

5th Period. One month, from the end of August to the end of September. Training of reserve men and manœuvres.

The company, battalion, and regimental exercises are repeated with reserve men in the ranks. Brigade manœuvres are practised in the field, and are followed by the manœuvres of larger bodies.

Supply of Ammunition in the Field.

Important instructions were issued on this subject in February, 1884. The supply of ammunition is treated under three heads, viz., the 1st line, the army corps, and the army reserves.

Ammunition with the 1st Line.

In the infantry each man carries 78 rounds, of which 36 in 6 packets are carried on the person, and the remainder in 7 packets in the pack. Non-commissioned officers carry only 36 rounds, on the person.

The artillery carry with the battery 150 rounds per gun.

A further supply is carried with the ammunition sections, of which there are 6 per army corps, viz., 4 for artillery and 2 for infantry, which immediately follow the troops and belong to the fighting train. These carry 142 rounds per man for the infantry and 200 rounds per gun.

One infantry and one artillery section is allotted to each infantry division, and the remaining two artillery sections to the corps artillery.

In addition to this supply, 16 rounds per man are carried with the baggage and ammunition wagons of the troops.

Total with 1st line	236	rounds per man.
" " 350	"	gun.

Army Corps Park.

With this are carried 33 rounds per man and 72 per gun. The park is divided into four sections, of which the first three are equally laden with small-arm and gun ammunition. The fourth carries the residue of the latter, also tools and material for repairs.

Army Park.

The formation is in five echelons, of similar composition, under a Colonel or Lieutenant-Colonel of artillery. The ammunition is packed in cases, and a portion of the 1st echelon is in wagons forming the transport division of the park. The 1st echelon is kept at the chief etappen stations ready for immediate use ; the 2nd and 3rd placed along the line of railway ; the 4th and 5th are kept in the first instance in the arsenals in the interior until it becomes necessary to push them forward.

The supply of ammunition to infantry in action is arranged in the following manner :—

The first reserve for the men engaged is drawn from the battalion ammunition wagon ; but before recourse is had to this, the ammunition of the men placed *hors de combat* should be distributed and used up. The wagons are replenished from the ammunition sections.

In action the wagons are grouped by regiments, the dépôt being marked by a yellow flag by day, and a lantern showing the same colour by night. The maximum distance from the front is not to exceed 1,100 metres, but in critical moments individual wagons may be pushed right up to the skirmishing line.

Every favourable opportunity is to be utilized for completing the men's supply, which is effected in the following manner. Men are detailed from each company in reserve to carry the ammunition into the firing line by means of bags, twelve of which are part of the equipment of each wagon. Each of these holds sixty packets of cartridges. As a rule, one wagon is emptied before recourse is had to the other, and is then sent back to the section to be replaced by a full one.

The supply of gun ammunition to batteries engaged is effected as follows :—

Each battery is divided into two portions ; the fighting unit, composed of the six guns and a similar number of ammunition wagons, and the reserve of the remaining three wagons and other vehicles.

As a battery approaches the position it is to take up, it leaves the three wagons in as sheltered a position as can be found, at a distance of not more than 300 metres from it. These three wagons form the 1st echelon of the reserve; the rest of the reserve wagons form the 2nd echelon, and are placed 500 to 800 metres further back. The three wagons remaining with the guns follow them into the position, one of them being allotted to each section. As they are emptied they retire, and are replaced by full wagons from the reserve.

In the normal order of march of an army corps the ammunition sections follow immediately after the engineer park. On the field they take up a position 1,500 metres in rear of the troops they have to supply, the spot being distinguished in the same manner as that occupied by the regimental wagons. In case of an unexpected engagement the sections have to move up without awaiting orders, their arrival on the field being reported to the commanders of the divisions and of the army corps to which they are allotted.

As a rule, the corps park remains at a day's march in rear of the army corps. On the troops becoming engaged it is to be moved forward without awaiting orders. The four park sections move together, and the empty wagons are sent back to be refilled from the 1st echelon of the army park, situated from one to two days' march in rear.

Japan.

Under the instruction of German Officers the Japanese army has made very material progress of late years, and it has arrived at a condition which promises to make an important factor in the future destinies of the far East.

Following the general development of the country in European ways and ideas, the military forces have been organized in an active, a territorial, and a national army. The standing army is composed of 16 regiments of infantry (46 battalions), 10 divisions of artillery, each of 2 batteries (20 batteries), and 1 foot artillery detachment, 10 companies of engineers, 1 train company, 3 half-companies and the bearer train, the telegraph corps, the gendarmerie and Yesso militia, formed from the colonists of that island.

The following is the strength of a peace establishment:—

Guard.....	3,884 of all ranks
Line	37,107 "
Special corps	2,470
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Total	43,461
Adding Staff, &c.	45,879

In time of peace it is not organized in the larger formations; but in time of war it forms two army corps of two or three divisions each. To allow of this, on mobilization two battalions of the Guard and twelve of the line have to be formed from the reserve.

The reserve consists at present of 15,000 trained men; but in 1883 the duration of service in it was prolonged from three to four years, and when it has attained its full development it is intended to number 60,000. Of these, 16,000 are required to complete the existing formations, and 14,000 for the creation of the additional battalions.

After serving three years with the colours and four in the reserve of the active army, the men are passed into the territorial army, the duration of service in which is five years. It answers to the German Landwehr, and is intended to supply a second force equal in strength to the active army. At the present time not a half of this number is in the territorial army, and it must take some years before the system is so far developed as to allow of the five annual classes being available. In time of peace only weak cadres, numbering about 1,000 of all ranks, are maintained.

The national army forms at present a scheme, and can only be a reality when a sufficient number of annual classes have completed their service in the reserve. Up to the present time the force consists of all men between seventeen and forty years of age, who have been exempted from service on legal or other grounds, and they are consequently of little military value.

When the territorial army shall have attained its full dimensions, and the annual classes have reached the normal strength of 15,000 men, Japan will be able to mobilize an army of from 150,000 to 160,000 men.

Active army completed to a war strength .....	...	59,000
Territorial army	59,000
Dépôt troops	10,000 to	20,000
National army	22,000 to	32,000
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150,000 to 170,000		

The organization is strictly on the territorial system, for which purpose the country is divided into six military districts, which are again subdivided into fourteen sub-districts, to each of which a regiment is allotted. The Guard is an exception, being recruited from the young soldiers of the whole army after completing six months' service.

Austria.

The reforms introduced in 1882 have been completed by new detailed regulations fixing the composition and strength of the component parts of an army in the field. The tables relating to this are published in the Reports, and show the following results:—

Distribution.	Battalions.	Squads.	Batteries.	Officers and men.	Horses.	Wagons.
Infantry division.	14½	3½	3	16,064	2,478	423
Cavalry division..	4	24½	2	5,637	5,658	395
Army corps	28½ (& 3 companies)	6½	11	35,361	7,076	1,190

This includes the train and other non-combatant services, deducting which the fighting strength is as follows:—

Distribution.	Bayonets.	Sabres.	Guns.
Infantry division.....	12,844	452	24
Cavalry division.....	—	3,742	12
Army corps	26,347	904	88

The "army in the field" embraces all the mobilized troops and organizations, and numbers 800,000 men with 1,712 guns. Adding to these the formations not forming part of the field army, the reserve troops, and the two Landwehr organizations, the entire strength of the land forces numbers 1,100,000, exclusive of the Landsturm, the formation of which has not yet been carried out.

The cavalry division is composed only of two arms, cavalry and artillery, with the necessary provision and sanitary formations attached.

The infantry division includes the Staff; 2 infantry brigades, comprising 14 to 15 battalions of infantry or rifles; 3 to 4 squadrons of cavalry; 1 division of artillery of 3 heavy batteries; technical troops according to circumstances; 1 train squadron of 3 subdivisions, one of which is for the baggage, office and provisions of the Divisional Staff, and the horsing of the field-post and sanitary wagons, the other two to carry on the provisions of the field columns; the divisional ammunition park, consisting of an ammunition column of the artillery division; the divisional sanitary column, with the field sanitary column of the German Red Cross Society; 2 field provision columns; and the Divisional Staff troops, consisting of a company of infantry and a troop of cavalry.

The army corps is composed of the Staff; 2 or exceptionally 3 infantry divisions; the corps artillery, consisting as a rule of 2 divisions of a field artillery regiment, viz., 3 heavy and 2 light batteries; the necessary number of divisions of engineers and pioneer troops, field bridging equipages, advanced guard bridge trains, field telegraph divisions, and intrenching-tool columns; 1 train squadron; the corps train park, destined to provide the necessary supply of horses, train material, and men; the corps ammunition park, consisting as a rule of the 3rd column of a field artillery regiment; the Corps Staff troops, viz., one Landwehr company and a troop of cavalry; and the treasure chest for supply to the several formations.

The Army is formed of a number of army corps, which varies according to circumstances. It is divided into the Staff; the army corps or divisions fixed by the *ordre de bataille*; the requisite number of field railway troops,

engineer and pioneer divisions, and bridge equipages ; the necessary proportion of reserve formations of the 2nd line.

There are specially attached to the Army Staff 1 train squadron ; the Staff troops, consisting of 1 Landwehr battalion and 3 troops of cavalry ; and the treasure chest.

The reserve establishments of an army in the field provide for the completion of the war material of the mobile army corps, to afford first assistance to the sick and wounded, and further to serve as feeders to the establishments of a similar nature in the front. Those regularly allotted to the divisions and army corps form the first line, and the remainder the second line of the reserve establishments.

The whole of these 2nd line establishments are at the disposition of the Commander of the Army, who allots such as he considers necessary to the several army corps according to their strength and the object they have in view, and relegates the remainder for employment on the line of communications.

The artillery reserve establishments provide for the replenishment of small-arm and gun ammunition, men, horses, and material. The following proportion of ammunition is carried by the troops themselves. In the infantry and rifles each non-commissioned officer carries 20 rounds, each lance-corporal, leader of a patrol, and private, 70 rounds. The two wagons attached to each battalion carry 52 rounds more per man for a strength of 800. The cavalry carry 50 rounds of carbine and 30 of revolver ammunition, and 9 more of each per man is carried in the wagon attached to the cavalry division.

The artillery carries 128 rounds per heavy battery, 152 per light and horse battery, in the limbers and battery wagons.

The reserve establishments provide a further supply by means of the divisional corps and army ammunition parks. The divisional park, composed of ammunition columns 1, 2, or 5 of a field artillery regiment, carries with it the reserve of small-arm and gun ammunition, men, horses, and partly also of material for the division. The proportion of rounds carried is 22 per man for 14 battalions of 800 men, and 82 per gun of the divisional artillery.

The corps ammunition park is formed by column No. 3 of a field artillery regiment, and carries a reserve for the whole corps artillery, besides cavalry and special troops, also explosives, tools, &c. The proportion of ammunition is 20 rounds for the special corps troops, 18 rounds per carbine and revolver, 74 per gun of light batteries, and 82 per gun of heavy batteries.

The army ammunition park provides for completion of ammunition, artillery, material, men, and horses with the divisional and corps parks and for the artillery of the cavalry division. It provides for the repair of all the artillery material and deals with captured material. It is formed from columns Nos. 4 and 6 of the field artillery regiments.

When it is considered necessary a reserve army ammunition park is also formed ; an army ammunition field dépôt is established at a spot fitted for the formation of dépôts and workshops, and affording good communication with the front ; and a siege artillery park with the necessary material for the siege of a fortress.

It is noteworthy that during the past year the lance was altogether set aside, and the whole of the Austrian cavalry is now uniformly armed with sword and carbine.

Eastern Roumelia.

3. The nomination of Drigalski Pasha, a German by birth, to the post of War Minister has had the effect of introducing a more practical element into the small army of which this province can now boast. The organization of the active force is on the smallest scale, numbering only twelve companies,

allotted respectively to the same number of military districts into which the province is divided.

The actual number of companies is at present six in excess of this, which are to be reduced when the condition of the country will admit of it. These companies form the cadres for the formation on mobilization of three battalions in each district. Of these the first is formed from the first levy of the Militia, the second from the second levy, and the third from the Reserve.

The total number of men, including all these, is as follows :—

Active companies....	130 Officers.	3,391 non-com. officers and men.
First levy	40 "	18,224 "
Second levy	19,187 "
Reserve	23,197 "
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Total..	170 "	63,999 "

Of the contingent of 3,873 men who were taken in 1884-85, 84·5 per cent. were Bulgarians, and only 7·5 per cent. were of Turkish nationality.

Portugal.

The reorganization of the Portuguese Army was inaugurated by means of a Decree in October last. The object in view is to raise the strength of the forces on mobilization to 120,000 from 75,000, at which figure it was previously fixed, making a gain of no less than 45,000 men.

This is not to be effected by any alteration in the recruiting law, beyond the extension of the previously existing term of service from eight to twelve years, with a view to the formation of a second class reserve.

In accordance with this three years are passed with the colours, five years in the first reserve and four years in the second. The peace strength is fixed annually by the Budget, and is as follows for 1885-86 :—

Infantry.....	24 line regiments.....	} 15,680
	12 rifle "	
Cavalry	10 regiments.....	3,700
Artillery.....	3 field artillery regiments, 2 garrison do., 4 garrison companies, 1 mountain brigade	3,580
Engineers		600
Administrative branches.....		440
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Total.....		24,000

But to arrive at the actual numbers with the colours 3,000 men who are on unlimited furlough without pay must be deducted, which leaves 21,000 as the correct number with the colours.

The annual contingent from which the number required is taken remains as heretofore 10,000.

The kingdom is divided into four territorial divisions for military purposes, having their headquarters at Lisbon, Vizeu, Oporto, and Evora respectively. These are divided again into a varying number of administrative districts. The islands of Madeira and the Azores are treated separately.

The infantry and rifle regiments are composed of two active and one reserve battalion, each consisting of four companies.

On mobilization the active battalions are completed from the following :—

1. The men on furlough belonging to the active army.
2. The men of the first reserve.
3. The trained men of the second reserve.

The reserve battalions include—

1. The trained men of the second reserve, beginning with the oldest classes, so far as these are not required for the active battalions.
2. The untrained men of the second reserve, commencing with the youngest classes.

In time of peace the reserve battalions have no cadres; only 1 Officer and a 2nd sergeant are borne as effectives.

The cavalry regiments are composed of three active and one reserve squadrons, each of two companies. These are all completed on mobilization from the men of the active army on furlough, the first reserve and those of the contingent of the second reserve who have actually served three years, beginning with the youngest. The horses are to be obtained as far as possible by direct purchase, and completed by requisition.

The field artillery regiments are formed on mobilization in 10 active and 2 reserve batteries each of 6 guns. The mountain artillery brigade is developed into a regiment with 2 active and 4 reserve batteries of 8 guns. The garrison artillery regiments form 8 active and 4 reserve companies each.

The four independent companies belong to the Azores, Madeira, and San Julian de la Barra. The active and reserve batteries are completed, both as regards men and horses, as in the cavalry.

The engineer regiment forms 2 active and 1 reserve battalion. Of the former 1 battalion is composed of 4 companies of sappers, and the other of 1 railway company, 1 telegraph company, and 2 pontoon companies. They are completed in the same manner as the cavalry and artillery.

There is a separate torpedo company and staff.

The effective strength on a war footing according to the new organization is as follows:—

Distribution.	Officers.	N.-C. Officers and men.	Horses and mules.	Guns.	Wagons.
Headquarter staff ..	36	—	—	—	—
General staff	49	—	—	—	—
Infantry	2,286	97,344	360	—	—
Cavalry	416	6,400	5,800	—	—
Artillery	488	9,687	5,689	264	—
Engineers	49	2,023	588	..	52
Total	3,324	115,454	12,437	264	52

118,778

Russia.

No material changes were initiated in the organization of the several arms during 1884, but some progress was made in carrying out those already commenced, more especially in the conversion of the Guard cavalry regiments (with the exception of the Cuirassiers) and the 46 Dragoon regiments of the line from 4 to 6 squadrons. The combined Life Guard Don Cossack Regiment was divided into two, each of which will be organized in 4 squadrons in peace and 6 in time of war. The first of these regiments bears the original title, and the second is called the Life Guard Ataman Regiment. Some additional sotnias of the Orenburg Cossack Woisko were also embodied for permanent service.

Some additions were made to the garrison artillery, of which the number of battalions was increased from 42 to 44 by the formation of a 3rd battalion at Warsaw, and the organization in a battalion of the garrison artillery at Gunib, in the Caucasus. The 2nd and 3rd Battalions at Brest Litovsk, and the 1st and 2nd at Ivangorod, were each increased by a fourth company.

By instructions issued in July, 1884, regarding the engineer formations, the Caucasus Pontoon Company was done away with, and some interesting details published regarding the engineer field parks and the military telegraph parks.

The former form a movable reserve of tools and other technical materials. Each park is divided into 2 sections, which is divided again into 5 subdivisions. Each subdivision carries tools, &c., for one field company and an infantry division. In time of peace the parks are attached to the several sapper brigades, of which there are five, and one of the Caucasus, and are numbered after them. In war the subdivisions are allotted to the several infantry divisions. The material and tools of the parks are stored in time of peace at the stations of the several sapper brigades, where they are mobilized.

The 16 military telegraph parks are composed each of two sections, divided into two stations. In peace they are also attached to the sapper brigades, and in war they are under the Chief of the Staff of the body of troops to which they are allotted. The pontoon trains, of which there are eight, besides one for the Caucasus, are intended to be attached to the several armies.

The organization of the train formations has at length been definitely settled, the nature of the carts and wagons for the several bodies of troops decided upon, and their proportions and order with the marching columns fixed. The most noticeable point in connection with this is the light nature of the wagons adopted, which, though it has necessarily the effect of increasing their number, will render the Russian Army the most mobile of any in Europe. This is especially suitable to operations in Russia itself, where good roads are generally wanting.

With the exception of the artillery ammunition wagons, six-horse teams are altogether dispensed with, and all the infantry, rifle, and cavalry small-arm ammunition carts are one-horsed, as are also the medical and veterinary carts.

The hospital wagons are partly two- and partly four-horsed; the provision wagons which accompany the troops are two-horsed, and those of the divisional train four-horsed. The formations are divided into regimental and special trains.

The regimental train is divided into—

1. Train of the 1st echelon.
2. " " 2nd "
3. Divisional train.

The 1st echelon is composed of a number of small-arm ammunition carts, the hospital wagons, some Officers' wagons, the ammunition and provision wagons. These follow immediately after the regiment, independent battalion, or battery.

The 2nd echelon includes the remainder of the small-arm ammunition carts; the two-horsed wagons with provisions, Officers' baggage, office gear, and intrenching tools; and the veterinary carts, battery wagons, and special engineer wagons. These follow the fighting troops at a distance, varying from $\frac{1}{2}$ to 8 kilometres. The small-arm ammunition carts are next to the

troops, to which they are moved up if an engagement is impending ; the remainder are then kept back to the full distance in rear.

The divisional train is formed of those wagons belonging to the troops which are only required from time to time. These consist of the four-horsed provision wagons and those conveying the sick. They are kept a day's march in rear on the main road.

Some idea is given of the number of vehicles employed by the fact that an infantry regiment has 102, and a dragoon regiment 48.

The special trains include the following :—

1. Ammunition park.
2. Sanitary trains.
3. Intendance transport.
4. Engineer trains.
5. Horse depôts.

They march ordinarily separate from the troops.

The ammunition parks are composed of flying parks, movable parks, and local parks. Each army corps has a flying artillery park per infantry division, and a flying cavalry park per cavalry division. They are divided into two echelons on the march, of which the advanced one is 10 kilometres in rear of the troops, and the other a day's march behind it. To each army or independent army corps, one movable artillery park and one local artillery park is attached for every two divisions. The former are collected in brigades of three or four, under the Officer commanding the army artillery. The local parks are employed in completing the ammunition depôts.

The sanitary trains are composed of divisional infirmaries, movable and reserve field hospitals, military sanitary transport, movable divisional and field dispensaries. The whole of these formations are attached either to the infantry divisions or to armies, no part of them being allotted to cavalry divisions or army corps. Each infantry and field reserve division is provided with 1 divisional field infirmary, 2 movable field hospitals, and 1 divisional dispensary, all of which are directly under the divisional commander. Every army would be furnished with movable and reserve field hospitals as required. Of the former 120, and of the latter 240 are provided for on mobilization.

The Intendance columns are a combination of the German provision and park carriage columns, and are each composed of 260 two-horsed wagons, carrying eight days' provisions for 8,500 men, and four days' oats for 1,500 horses. Every army has two such per infantry, and one per cavalry division, and additional transport can be allotted to it if considered necessary.

The Intendance columns are grouped into brigades, of which each army corps has one of 5 or 7 columns, according to the number of infantry divisions composing it.

Those columns which are actually with the armies are placed under the Commander of the Communications of the Army; those further back under the Commander of the Military District.

Generally speaking the supply of a Russian army in the field is provided for in the following manner. The Intendance columns form the supply reserve in the hands of the Army Commander. They complete and fill the provision wagons of the divisional train, and can also be employed in filling the magazines; they ensure an eight days' supply for the troops dependent on them.

The four-horsed wagons of the divisional train form the supply reserve at the disposal of the commander of the division, and carry a four days' supply for the troops composing it.

The two-horsed wagons of the regimental train carry one day's supply for the dismounted, and two and a half days' for the mounted troops, besides four days' forage for the draft horses.

Lastly, the whole of the troops carry themselves preserved rations, the infantry for three days, mounted men for two days, with oats for a like period. Altogether sixteen days' provisions should be carried. Field bakery establishments are not provided for, but men are detached to the magazines from the troops for the purpose of making bread.

A remount depot for 100 horses is formed for each infantry division, and one for 60 horses for each cavalry division. In addition to these one is provided for each army of undefined strength.

By the new arrangement of the regimental train, the amount of ammunition to be carried has been slightly reduced. It is now fixed for all the infantry, including the reserve divisions of the 1st line (12 divisions), at 132 rounds per rifle. Of these, 84 are carried by the man, and the remaining 48 by the regimental train. Dragoons and Cossack troops have 72 rounds per carbine, of which 36 are carried by the men, and 36 by the train. The cavalry have 6 rounds per revolver, others carrying that arm 18 rounds. Non-commissioned officers carry 30 rounds per rifle, and none is provided for them in the regimental train.

The reserve divisions of the 2nd line (12) carry the same as the rest; but have no train for a further supply.

The batteries are provided with ammunition in the following proportion:—

Heavy batteries per gun	106	rounds
Light " "	145	"
Horse " "	130	"
Mountain " "	96	"

Turkey.

The year 1884 witnessed little, if any, progress in military matters, which have been more or less at a standstill since 1881. As, however, the capabilities of the Turkish Empire have at the present time a special interest, a résumé of its armed strength, as contemplated by the reorganization of 1880-81, and described in Colonel von Löbell's pages, will not be out of place.

By this the forces of the Empire were divided into three portions: the field army, the garrison army, and the landsturm.

The field army is based on the territorial system, the seven regions into which the Empire is divided furnishing each an army of three army corps, with the exception of the first, embracing Arabia, which has only a local and garrison force forming one army corps. Each of the six regions furnishing an army is subdivided again into 32 battalion recruiting districts.

The three army corps composing each army are formed respectively from the troops of the Nizam (active army) and the Redif (reserve) of the 1st and 2nd Class respectively. They are organized on a similar *ordre de bataille*, comprising 26 battalions, 24 squadrons, 14 batteries, and 1 pioneer battalion, which gives 26,000 infantry, 3,600 cavalry, 84 guns, 1,000 pioneers, and a total of 32,700 combatants.

The whole mobilized field army therefore amounts to 468 battalions, 432 squadrons, 252 batteries, and 72 pioneer companies, numbering 588,600 combatants, with 1,512 guns, organized in 6 armies each of 3 army corps of 2 infantry and 1 cavalry division.

The garrison army is composed—

1. Of the dépôt troops of the 18 field army corps, viz., 1 battalion or

squadron per regiment, giving 144 battalions and 108 squadrons, or about 150,000 men.

2. The Nizam Army Corps of the 7th region (Arabia), which provides solely for the local requirements, has no reserve, and is recruited from the contingents of the other six regions. It is composed of 34 battalions, 6 batteries, and 1 pioneer battalion, and of the militia of Crete and Tripoli, 9 battalions and 3 squadrons strong. Total about 35,000 men.

3. The garrison artillery, not yet organized, but intended to be distributed throughout the kingdom, about 18,000 men and 1,800 guns.

The Landsturm comprises 6 yearly classes of men who have completed their 6 years in the Nizam and 4 years in each class of the Redif, estimated at about 300,000 men, and all the effective men between 20 and 40 years of age not serving in any of the above categories, some 40,000.

How far this organization will answer the expectations formed of it by providing the numbers estimated, it is as yet too early to judge. Up to the present, progress has been chiefly confined to the Nizam. The 1st Class Redif is altogether wanting in cavalry, in great part in artillery, and in infantry in a lesser degree; the 2nd Class Redif is as yet non-existent in peace time, while the Landsturm remains in the form of a project. The garrison army is present, with the exception of the dépôt troops for the Redif formation. Consequently, the Nizam army in time of peace has 4 battalions or 5 squadrons respectively per regiment of infantry and cavalry.

Inclusive of the Cretan and Tripoli Militia, the garrison artillery, and the Arabian Nizam Army Corps, the Turkish active army at the close of 1884 numbered 264 battalions, 189 squadrons, 140 batteries, 8 garrison artillery battalions, 12 engineer battalions and departmental troops, in all 158,959 men (with about 9,900 officers), 23,025 horses, and 3,202 guns.

Of these, 12 engineer battalions and one battery are under the orders of the chief of the artillery, and the remainder are distributed in the following manner :—

Distribution.	Headquarters.	Battalions.	Squadrons.	Batteries.	Garrison artillery batteries.	Engineer battalions.
1st Army Corps	Constantinople	35	30	30	8	—
2nd "	Adrianople ...	32	30	14	..	1
3rd "	Monastir	38	30	20	..	1
4th "	Eringan.....	34	30	24	..	1
5th "	Damascus	34	29	15	..	1
6th "	Bagdad	34	30	14	..	1
7th "	Sana	34	..	6	..	1
Militia	Tripoli	17	10	3	..	1
"	Crete	6	—	—	—	—
Total ....	.....	264	189	126	8	7

The reorganization of the army, according to the scheme of 1881, has been delayed during the past year by other causes besides Oriental procrastination. Local disturbances took place, which necessitated the concentration of troops and interfered materially with the development of the territorial system. The only one of these disturbances of any military importance was that in the Hedjaz, which necessitated the employment of 10,000 men to quell it.

Infantry Tactics.

The year 1884 was an active one for European armies in the matter of the development of infantry tactics and musketry instruction and practice. The point of principal interest is still how to deliver the infantry attack in open ground without such destructive losses as were experienced at St. Privat and Plevna. The progress in the perfection of arms which, as it was anticipated, would lead to a preponderating advantage for the defence, has not prevented the attack from being, as previously, the stronger.

It is held by the advocates for the adoption of a magazine rifle that with its introduction this could not continue to be the case. This contingent deduction is questioned, though it is fully admitted that, whether the present nature of arm remains unchanged or a repeater introduced, the formations must be considerably modified, if the attack is to retain its superiority and become possible without a disproportionate sacrifice of life.

The latest regulations, recent practice on the parade-ground and at manoeuvres, and the general literature on the subject, lead to the conclusion of certain principles which may be briefly summarized as follows :—

The decision in an infantry engagement can only be arrived at by a concentrated fire at the most effective distance. Attack with the bayonet, unaccompanied by the previous shaking of the enemy, can lead to no successful result, and exposes the troops attacking to destruction.

Troops in close order can find no place in the front fighting line, and their rôle is to feed the skirmishing line of fire, replacing its losses, filling up gaps, and, by constant reinforcement, to strengthen it to the utmost. The introductory fire of the skirmishers commences at about 700 metres by group volleys concentrated upon the decisive points. The advance up to effective distance from the defended position is carried out by alternate rushes, covered by the fire of the latter portions of the line.

The resistance of the enemy must be broken by volley and rapid independent fire, at a distance of from 200 to 300 metres. The final advance is made by the steady, uninterrupted closing to the front of the reserves, care being taken to avoid a premature advance consequent upon any partial success of the skirmishing line. The assault follows by order of the commander, when it becomes evident that the enemy is seriously shaken, and is carried out with all the available forces.

Attacks must always be executed as rapidly as the circumstances will permit, for the losses of the assailants will be proportionally greater than those of the defenders, and the former cannot reckon upon the continued supply of ammunition.

If successful, the enemy must be followed up with a hot fire. In the contrary case, the attacking troops must be promptly withdrawn behind the nearest available cover and there re-formed.

The absence of preparatory artillery fire robs the attack of its most valuable preliminary, and can then only be justified by a great preponderance on the part of the attacking force.

The question of the introduction of a repeating rifle remains where it was. Switzerland alone has armed her infantry with it, and the other Powers still maintain an expectant attitude regarding it. It is recognized on all sides that sufficient grounds do not at present exist for its adoption.

The most valuable quality in such an arm is, that the time employed with the ordinary rifle in loading can be devoted to taking more careful aim, rather than the increased rapidity of fire to be obtained from it. But to profit by this it must be in the hands of carefully trained and perfectly drilled troops, failing which its employment would be detrimental. The question, however, of the moral effect which must be produced by troops armed with

the present rifle being opposed to an enemy armed with the repeater, has also to be considered. This must be a powerful incentive to lead other armies to adopt the latter should it be introduced by any one of the greater military Powers, and for this reason no pains are being spared to test the capabilities of the arm.

New and important regulations for the musketry instruction of the German Army were issued in September, 1884. The essential points in these are a more thorough instruction in individual firing and the development and adaptation to the conditions of real warfare of field-firing. The firing at moving objects forms a part of this, not only at targets travelling across the range, but also up and down it, so as to allow of greater variation of circumstances. Particular value is placed upon snap shooting, as is the case in the Austrian and Italian infantry.

Other conditions are introduced, such as targets representing infantry lying down, and also behind entrenchments. Practice assimilated to fortress warfare is also gone through, the men firing by day from trenches at disappearing targets, and by night by means of fixed rests.

Firing at longer ranges than 800 metres is, as a rule, only to take place in the field by order of the battalion commander or other superior Officer. In case of necessity, fire may be opened on batteries, columns, and other deep formations at a range of from 800 to 1,200 metres.

At the beginning of an engagement, line or group volleys are to be fired, provided the body firing has not itself already come under effective fire; also with strong skirmishing lines, when the aim is obscured by smoke.

It is laid down as a rule that pauses in the firing should take place when this is the case, and a signal for this is provided for by the whistle, with which the commanders of the several units are provided. Independent fire is restricted to exceptional cases.

Instructions are further given in the present regulations for judging distance practice, for the men up to 800 metres, for the Officers and non-commissioned officers up to 1,200 metres.

In France, new drill regulations were published in place of those of 1875, on which they are in many respects an improvement, though the same principles are adhered to. The attack formation for a battalion differs according as it is acting in brigade or independently. In the former case the battalion is formed as follows:—

1. Skirmishing line, the four leading sections of the two advanced companies.
2. Supports, the four remaining sections.
3. Reserve, two complete companies.

An independent battalion is formed differently in the following manner:—
1. Skirmishing line, the leading sections of the two half companies of the company forming the advanced guard.

2. Support, the remainder of this company.
3. Reserve, the three other companies, to be employed according to circumstances.

The deployment takes place at 1,500 metres from the position to be attacked. The direction is given by a flag-bearer, controlled by the Adjutant Major, by the aid in covered ground of a compass. At a distance of 400 metres all the supports are brought into the advanced line, which is strengthened by one company from the reserve, the remaining company moving up to 200 metres from it. On arriving within 200 metres of the position, the assault is given, supported by the remaining reserve company, which is kept intact.

The practical element introduced by Russia in the training of her troops, which has been so conspicuous in the exercises of the cavalry to which atten-

tion was directed in the Reports of 1883, has been given a further development in the direction of field-firing. This has been practised with a mixed force, with the double object of training the men in the use of the rifle under conditions assimilated as far as possible to actual warfare, and of instructing the Officers and non-commissioned officers in the control and direction of the fire under the same conditions.

At the camp of Krasnoe-Selo a force, consisting of a battalion at the war strength, a squadron of cavalry and a battery of artillery, was formed for the purpose. The enemy were represented by targets as advancing against a position preceded by a skirmishing line.

An attack was made upon the enemy, who were supposed to open fire at 900 paces, which was answered, and the 1st line then advanced by rushes firing to within 200 paces. The method of firing, whether slow, individual, or rapid independent fire, was left to the discretion of the leaders.

The enemy's artillery was attacked by a company of the 2nd fighting line during a supposed change of position, and five volleys fired at it. Fifty-eight dismounted cavalry fired five volleys at a company column of the enemy at 900 paces (28 hits). The 4th company manœuvred on the enemy's right flank, and two of its subdivisions fired four volleys indirect fire at the enemy under cover at 1,200 paces (23 hits). Two subdivisions of cavalry fired for $2\frac{1}{2}$ minutes independent fire at the enemy's skirmishers (66 hits). The extended companies, reinforced by their third subdivisions, plied the advancing columns at 800 paces with independent fire (200 hits), whilst the enemy's skirmishers, at a distance of only 400 paces, were held in check by a subdivision (312 hits).

After the cavalry had been firing at the enemy behind a shelter-trench at 1,200 paces for $1\frac{1}{2}$ minutes (69 hits), the enemy's skirmishers being repulsed, were followed up by six subdivisions at distances from 500 to 150 paces, first with individual fire, then with independent fire, preparatory to a bayonet charge. The reserve company completed the exercise by volleys and independent firing, lasting two minutes.

The general result was that 13,187 cartridges were fired, of which number 614 were expended by the cavalry, and that the percentage of hits was 21 for the infantry and 26 for the cavalry, which did not change their position. The weather was dull and rainy.

Officers of the Musketry School were attached to the company commanders to instruct as to the sighting and control of the fire. To mark the losses of the attacking force, Officers and men, up to a quarter of the total numbers, were gradually taken from the ranks. The supply of ammunition was provided for by men from the reserve company, who, after bringing it up, joined the ranks of the advanced line. The men were further enjoined to complete their ammunition from those retiring as supposed casualties.

A similar manœuvre by four battalions, two squadrons, and four batteries was witnessed by the Czar.

Field Artillery Tactics.

No material changes are noted in the tactics of field artillery during 1884; but a brief summary is given of the latest regulations on the subject introduced into the Italian Army, though these actually date back to 1882. It is pointed out in these that from the nature of artillery, the separation of a reserve is not called for, and that this arm should operate in masses.

The change of position is to be, as far as possible, avoided. A position at a greater distance from the objective, but from which the effect of the fire can be observed, may often be more favourable to effective fire than one within

shorter range, but from which it is not possible to observe the result of the fire.

The artillery of an army corps is generally separated in action and has separate objects to attain, so that a single command of the whole of it can seldom be preserved. The commander of the artillery has, therefore, the direct command of it when the bulk of his batteries have a single object in view.

In action the artillery allotted to a body of troops must not be withdrawn from it without the special order of the Commanding General. The enemy's artillery should only be engaged within 2,400 metres, and at not less than 1,500 metres, beyond the effective range of rifle fire. To silence the enemy's artillery, a second position under 1,800 metres must be taken up, and when this cannot be maintained without endangering its own infantry by its fire, the artillery may take up a third position at a distance not under 1,000 metres from the enemy's infantry. Modifications of these normal conditions may become necessary. The circumstances of the ground may often prevent artillery leaving its first position.

Only the most exceptional conditions will justify a further position being taken up under 1,000 metres. For instance, should the course of the action prevent the guns participating in it without a further advance, they must be moved forward to suitable ground regardless of risk.

So soon as a position has been seized, the whole of the artillery must follow up the retiring enemy. It must depend upon circumstances whether the artillery takes position on the flanks or in the middle of the other troops. At the commencement of an action and during the artillery action, the other arms will regulate their movements chiefly with reference to the guns. Later on the movements of the artillery will be regulated by the infantry.

In the defence, the whole of the disposable artillery will be employed. Its position will be chosen without regard to the other arms; but will not be occupied too early, so as not to make the enemy aware of them. For the same reason fire will not be opened too early, nor should it be directed upon unimportant objects.

If the defending artillery is in danger of being silenced by the fire of the enemy's guns in the course of the artillery action, it should be withdrawn so as to be reserved intact for the decisive moments of the attack. The range of the defending guns should not exceed 2,400 metres. The effect of rifle-fire will be felt under 1,200 metres, and even over 1,500 metres by artillery. It is very important to get the guns into position unperceived, so as not to be exposed to the enemy's fire in the act of unlimbering, and also to secure the advantage of opening fire unexpectedly.

A new work by Lieutenant-Colonel v. Hoffbauer, entitled "Applicatorische Studie über die Verwendung der Artillerie in Grösseren Truppenverbänden," deals with the general principles upon which the artillery belonging to the larger bodies of troops should be handled. In the course of the study the artillery of two opposing army corps are dealt with, and the following general conclusions, arrived at by the author, are worthy of notice:—

1. In the decisive period of an attack the offensive has no chance of success if the defending artillery is able to maintain itself successfully in its positions.

2. After driving back the defending artillery, it is absolutely necessary for the attacking artillery to bombard the infantry positions of the defence systematically before the attacking infantry assaults them.

3. The defending artillery must, as a rule, engage the attacking guns when the chances are in favour of crushing them.

4. On the advance of the assaulting columns for the storming of a posi-

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tion, the artillery must not be entirely left behind. A strong artillery must be available to move promptly into the captured position.

5. The defending artillery, when it has not been successful in its engagement with the attacking guns, or when it has not been in a position to engage these with any chance of success, must not on that account remain entirely passive. It should manœuvre, and endeavour to operate by surprise from unexpected points.

6. In the absence of clear instructions from the Officer in chief command, the systematic employment of the artillery is impossible, or at least made excessively difficult.

7. For the employment of the artillery in a regular battle, it is immaterial whether all the army corps artillery is previously attached to the two divisions, or if one regiment is separated from them as corps artillery.

Defensive Works.

France, having nearly concluded the works decided upon for the defence of her other frontiers, has now turned her attention to the Pyrenees, to the fortification of which a considerable sum is to be devoted. The first point to be dealt with is in that portion of the frontier situated in the Department of Ariège which is opposite the Spanish fortress of Puicerda. The road leading to this runs over the summit of the Pointe-Couronne, and it is at this spot that a fort is to be built to block the road, which should by now be in course of construction.

In Russia the progress of the Warsaw fortification works have come to a standstill. Already in 1883 all the preparations were ready for proceeding with the outer line of works, and the necessary material for the purpose had been collected. But in 1884 orders were issued to postpone all further work upon them.

Italy continues to make great efforts to complete her frontier and coast defences. A large sum was voted for the purpose in 1884, and a Commission reported how it should be applied and distributed between the four groups composed of the Alpine frontier, the sea-coast, the interior, and the islands of Sicily and Sardinia. Following the system recommended, considerable progress has been made with the works in connection with each of the groups, but more particularly at Spezzia and Rome, though these are far from completion.

Even Spain has not been idle during the past year, but has made a commencement towards the strengthening of Ceuta, which from a defensive point of view has hitherto been of little value.

In Belgium the tardy completion of the system of land defence decided upon as far back as 1859 has been proceeded with more rapidly by the destruction in part of the citadel, the rebuilding of the older portion of the works, and the erection of detached forts. Of the latter, the first two are fairly complete; money has been voted for a third, and a fourth planned. Between these detached forts and the inundations fourteen redoubts are projected, and would be constructed on the necessity arising.

The forts, destined to receive an armament of seventy-four guns, have the form of five-sided redoubts with long faces, forming very obtuse angles, and short broken flanks. The ditches are broad and deep. On the sea side they are strengthened by plated batteries and revolving cupolas.

In connection with the progress of permanent fortifications is to be noticed the advance in scientific adjuncts for their defence. Of these may be noticed the great development of electricity, balloons, torpedoes, and carrier-pigeons for purposes of communication.

REVIEWS.

Regulations for the Instruction and Movements of Cavalry, 1885. Price 2s. 6d. [It is desirable to state that for the following remarks on these Regulations we are indebted to a cavalry Officer, thoroughly well qualified by position and experience to pronounce opinions on the leading of this important arm.—L. A. H.]

The "Cavalry Regulations" of 1876 were a decided step in advance of those of 1869. They form, indeed, a notable landmark in the history of the development of cavalry drill in England, for they dealt the last blow to the time-honoured pivot-drill, and foreshadowed the two main features of the present Regulations, viz., movements in squadron column, and the employment of cavalry masses in three lines. A marked improvement, as the 1876 Regulations doubtless were, upon the Instructions which preceded them, they were still far behind those in force in the cavalries of the principal Continental nations, for they were hampered by a fatal condition: the troop must still be preserved and treated as a tactical unit. And this condition still obtains, forming the chief blot in the new drill.

In the limited space at our disposal it will not be possible to enumerate every alteration which has been made in the Regulations of 1885, and we must, therefore, content ourselves with noticing the most important changes that have been introduced.

Military Equitation.—Beyond the correction of minor inaccuracies, very little that is new is to be found here. The incline in the riding school, whenever the size of the school will admit of it, is to be the same as in the field, viz., one-third of a turn. A simpler post practice for the sword has been introduced. In swimming a horse, it is no longer recommended to attempt to remain in the saddle.

Part I. Instruction on Foot.—The mode of executing formations of squad on foot has been assimilated to the mounted drill, so that the recruit has no longer to unlearn at squadron drill what he has had impressed upon him during squad drill.

The sword exercise, somewhat amplified, lance exercise, and carbine manual exercise have been introduced into this part, instead of being issued as separate manuals. The funeral exercise for lance and carbine has been for the first time definitely laid down.

In the foot parade of the regiment the distance of rear from front rank has been diminished to three paces, a sacrifice of accuracy to uniformity; for if the distance be strictly adhered to, the rear rank sections will not have their proper frontage on wheeling fours right or left. The formations for sword and lance exercise have been described in greater detail.

Part II. Squadron Drill.—In the definitions of terms, besides minor alterations, half-column and squadron column have been introduced, and skirmishers omitted, The latter term is now no longer applicable to cavalry.

Mass of columns and line of columns no longer refer exclusively to quarter column, so that it is now necessary to say "Line of Squadron Columns," "Line of Double Columns at Close Interval," "Mass of Quarter Columns," &c.

The term Ground Scouts is used instead of Squadron Scouts, and Reconnoitring Groups instead of Advanced and Flanking Patrols.

The front rank of the squadron for drill purposes is to be made up to thirty-six files, ground scouts, signallers, pioneers, &c., being invariably placed in the rear rank.

The centre of the squadron is now the left guide of the right troop.

The principle is inculcated of dressing in the ranks more by the front than by the flank, each man riding at the pace ordered, and looking to his leader rather than anxiously looking to the directing point in the rank: *i.e.*, as von Schmidt puts it, every man should *feel* the pace, and principally take care that he is riding at the same pace as his leader.

The most noteworthy alteration in this part of the drill is that while all formations to the front, flank, and rear, from fours, &c., from the halt will be executed to the halt, as heretofore (and similarly in increasing the front from single file, &c., to squadron), all formations and every increase of front ordered while the squadron is moving will be made on the move, unless the previous caution "*To the Halt*" be given; in other words the caution "*On the Move*" is abolished in favour of "*To the Halt*." It is well to observe, however, that in field movements (with a few obvious exceptions) *all* formations are to be executed on the move (*i.e.*, without coming to the halt) unless the previous caution "*To the Halt*" be given.

A short section on the Preparation of the Squadron for regimental movements has been added, in which some useful instructions for the guidance of squadron leaders are given.

The distinction between the duties of ground scouts (formerly called squadron scouts) and reconnoitring groups is clearly laid down; the former, as their name now indicates, simply confine their attention to the ground over which the squadron has to pass.

The section on Dismounted Duties, by which is meant only the fire-action of cavalry, has been much amplified. In addition to detailed instruction for the employment of dismounted men with carbines, the main alterations are that three out of four men can be dismounted to act temporarily on foot; while on the dismounted men of a squadron forming up, the rear rank men of each section form in rear of their own front rank men, constituting what is termed "a group." Each group will consist of six or four men, according as three or two out of four were dismounted, and each will have a group leader who may be the senior man in it. All troop leaders dismount when their men are dismounted, so as to lead their own men.

Part III. Movements of the Regiment.—It is in this portion of the Regulations that the most important changes have been made. As before observed, the Instructions of 1876 foreshadowed the employment of line of squadron columns, but they merely indicated its use as a formation for the advance under fire or in broken ground where line would be difficult to handle. No instructions were given for executing field movements when in line of squadron columns. It is now clearly laid down as a principle that while advances in line are to be constantly practised, as being the most difficult movements to execute correctly and also the very formation in which the enemy is to be met, still all manoeuvring should be done in line of squadron columns, and line only formed when the regiment has been brought by the previous manoeuvring into a position from which it can move directly on its object. Hence the Regulations give detailed directions for only very few movements from line, while nearly every imaginable movement from line of squadron columns, and perhaps one or two which might have been thought unimaginable, have been described in detail. The movements from line are chiefly those that would be required when the regiment is formed for parade purposes; but as it will often happen that a regiment in line has to change its position, several other movements have been indicated in the observations at the end of the corresponding movements from line of squadron columns.

No doubt a small column formation is absolutely necessary "for advancing over rough or broken ground, or through the intervals between other troops, and for utilizing casual shelter from fire," but it is impossible to look at some of the movements from line of squadron columns, whether in the plates or in the field, without being struck by the enormous waste of time and horseflesh which is entailed by wheeling troops about; in fact squadron columns are *not small columns*, and the present drill can only be looked upon as a makeshift—an attempt to assimilate our drill to that of the most advanced Continental cavalries, while still retaining our clumsy troops.

If, as must inevitably occur sooner or later, the squadron were divided into four

(or even three) pelotons of 12 files each, instead of into two troops of 24 or 18 files, the system of drill now laid down would require no alteration beyond the substitution of the word "peloton" for "troops." We use the word peloton for want of a better rendering of the German and Austrian word "zug," as the term "division" (even with a small "d") already does duty for too many units.

Anyhow, to return to the Drill Book, many of the movements from line of squadron columns appear to be much more suited to pelotons than to troops, and we must presume that the compilers of the Regulations had the probability of an early abolition of the two troop system in mind, when they decided that change of front and position, throwing a flank back from line of squadron columns, should be done by the wheel about of troops. Meantime, there is nothing to prevent these movements being executed by the wheel about of fours.

Two new formations are to be noticed : "Line of Squadron Columns at Close Interval" (one horse's length between squadrons), and "Double Column at Close Interval" (one horse's length between columns and three horses' length distance between troops). They are principally suited to positions of reserve.

The principle of performing all field movements on the move, unless otherwise ordered, has already been adverted to; obvious exceptions to this rule are changes of front and position, which do not indicate a forward movement, and the wheel into line of a column from the halt.

As a general rule square movements are only used when the formation is made to the halt, the diagonal being as far as possible used for all formations on the move.

The employment of half-column movements of the regiment is sanctioned, but the mode of employing this formation is not described in detail. The French Cavalry Committee, when settling the principles of their latest Cavalry Regulations, unanimously condemned the half column of the German drill, which is also excluded from the Austrian Drill Book; the compilers of the English Cavalry Regulations have not gone quite so far, as they do allude to it. At any rate the main objections to that formation, founded chiefly on the subdivision of the squadron into four loosely connected fractions, have not the same weight with us, for our troop system must be allowed to have this one advantage, that it splits the squadron into two separately led fractions instead of four.

Under the head of Parade Movements, the chief alteration is the return to "Gallop past by Squadrons," instead of "Canter."

Part IV. Brigade and Division Drill.—Here we have for the first time an authorized system for the employment of cavalry masses in three lines. The main peculiarity, as compared with the German drill (*i.e.*, von Schmidt's system, on which all modern brigade and divisional drill is more or less founded), is that the support (the 2nd line) is in échelon at 50 to 100 yards' interval from the 1st line; the argument advanced for this innovation being that if it were placed in échelon to the rear with only the usual interval (12 to 24 yards) it could not deliver its most effective stroke, *i.e.*, a flank attack or an oblique attack on the enemy's 1st line, without losing much precious time in making a détour outwards.

Another peculiarity is the suggestion that the reserve (the 3rd line) may in cases be advantageously placed in rear of the interval between the 1st and 2nd lines, instead of on the protected flank as is usual.

No details are given of the mode in which each regiment in brigade and division drill is to get into its new position in the different movements. The plates illustrating these movements, which we understand are now in the press, and will be issued separately, so as not to increase the size of the Regulations beyond what is absolutely necessary, are no doubt considered sufficient to indicate the position to be taken up by each line, and no attempt is made to tie line commanders down to any particular mode of reaching that position.

A chapter on the employment of horse artillery with a division of cavalry completes this part.

Under the head of Miscellaneous Subjects but few changes beyond the corrections of inaccuracies have been made. "Skirmishing" has been omitted, as have also been the sections on "Trumpet Sounds" and "Dress and Equipment." It is to be hoped that the latter will reappear in the next reprint, as it can hardly be dispensed with.

Part V.—This is devoted to the Detached Duties of Cavalry, and certainly gives a great deal of information in a very reasonable space. The Instructions on this head issued with the Cavalry Regulations of 1876, although clear in style and excellent in matter, were hardly up to date, but the "Instructions in the Duties of Cavalry Reconnoitring an Enemy," for the use of the auxiliary cavalry, adapted from the same original, contained a few pages on reconnoitring an enemy, and a map illustrating the operations described, which we think might with great advantage be added to future editions of the Cavalry Regulations.

We notice a few mistakes in the re-drawing of the old plates, but they are too obvious to lead any one astray, and will doubtless be rectified in the next issue.

In conclusion, the Regulations of 1885 bring the cavalry drill fairly up to date, so far as can be done while the organization by troops is retained, and as for preparing the way for the squadron system and the division of the squadron into four pelotons instead of two troops, we ought on the whole to be well satisfied with the work.

The Congo and the Founding of its Free State.. By HENRY M. STANLEY. London : Sampson Low, London : 1885. Two Volumes. Pp. 1011. Size 9" x 6" x 4". Weight 5½ lbs. Price 42s.

The foundation of an enormous free State in regions comparatively unknown, and yet fairly easy of access to the rest of the world, has consequences so far reaching that there are connected with it problems to be grasped by the intellects of statesmen only; its future effect on trade and commerce must necessarily be a matter of deep personal interest to the mercantile and seafaring community; the openings offered by it for colonization come home to the minds of all who are members of a community overcrowded at home, and in which the instincts of colonization are a marked trait in their national character; for all of these classes, therefore, Mr. Stanley's latest work will furnish materials for careful and grave consideration, but for military and naval men it is a deeply interesting study of the value of discipline and of forgetfulness of self in overcoming difficulties both naval and material. If Mr. Stanley will at some future time record in detail the obstacles put in his way by both man and Nature, and will show us how he surmounted them, he will afford to both a navy and army almost continuously in contact with uncivilized nations, a valuable aid for the work in which they are frequently engaged. The book is supplied with many maps and illustrations.

Memoirs of Hydrography. Compiled by Commander L. S. DAWSON, R.N. In 2 Parts. Eastbourne : Keay. Pp. 342. Size 10" x 7½" x 1¾". Weight under 3 lbs. Price 21s.

This work contains brief memoirs of the numerous maritime surveyors of all countries, but chiefly of Great Britain, whose labours have extended over nearly a century. The memoirs commence with that of Professor M. Mackenzie, 1750—71, and close with that of Sir F. Evans, 1874—84. The Appendix contains articles on the Marine Surveys of India, the United States Coast Survey, a Chronological Table of the principal Geographical Studies of Modern European Nations, and on the Early History and Introduction of Chronometers as aids to Navigation in the Royal Navy. The book is the result of a vast amount of labour and research.

A History of the Indian Mutiny. By T. R. E. HOLMES. 2nd Edition. Revised. London : Allen, 1884. Pp. 576. Size 9" x 5¾" x 2". Weight 3 lbs. 1 oz. Price 21s.

The object of the author, as he states in his modest preface, is to "record everything that was worthy to be remembered; to enable readers to understand what sort of men the chief actors in the struggle were, and to realize what they and their comrades and opponents did and suffered; and to ascertain what were the causes of the Mutiny; and how the civil population of India bore themselves during its progress." Commencing with a clear introduction devoted to Anglo-Indian history to the end of Lord Dalhousie's Administration, the author deals next

with the Sepoy Army, and in the third chapter we reach the outbreak of the Mutiny, and of the proceedings at Meerut, which are told in plain and outspoken language, not flattering to the British military leaders ; the really pathetic story of Tayler, "the man who never knew when he was beaten," is eloquently told, and may nerve Mr. Tayler's friends to persevere in efforts to obtain for him even bare justice. As we read of the story of Cawnpore and of Havelock's campaign, we find the author never fails to interest us in events so many of us seem to know already so well. Mr. Holmes can moreover, on the one hand, hold up a hero for admiration without bedaubing him with flattery, and on the other hand pourtray the character of a failure without vindictiveness ; but we cannot agree with him in the picture he draws of Hodson, or in his estimate of the ethics involved in Hodson's conduct towards the princes. But points such as these cannot be conclusively determined, and even if on some important questions readers differ from the author, they will regard the book as an admirably written contribution to the study of the Indian Mutiny.

Staff Duties. A Series of Lectures addressed to the Officers at the Staff College. By Major F. C. H. CLARKE, C.M.G., R.A., Professor at the Staff College. Official Publication, 1884. Pp. 339. Size 7 $\frac{1}{2}$ " x 5" x 1". Weight under 1 lb. Price 3s.

It is to be feared that this work will not meet with the circulation it deserves ; first, because being entitled "Staff Duties" regimental Officers will imagine that its contents do not concern them ; secondly, because the work issuing from the Stationery Office there is little incentive for any one member of the "trade" to make it known. But dealing as it does with many of the daily incidents of the life of a soldier on services such as marches, bivouacs, &c., it contains much information of great practical value to others than Officers on the staff, and we shall be very glad if a notice in this Journal leads even a few regimental Officers to spend a few hours in the perusal of this book. Major Clarke's qualifications for writing it are too well known to need to be touched on here.

La Fortification de l'Avenir. Par le Colonel d'Etat Major A. L. CAMBRELIN : Ghent : Hoste ; and Paris : Berger Levrault. 1885. Pp. 226, and volume of Plates. Size 9 $\frac{1}{2}$ " x 6 $\frac{1}{4}$ " x 2 $\frac{1}{4}$ ". Weight 3 lbs. Price 12s.

In these volumes the author puts forward for acceptance types of forts which he terms "forts de position," and which are permanent redoubts to be erected on lines of communications, or at points which are to be held purely for military purposes. He considers forts for these purposes should fulfil three conditions :— 1. They should be impregnable to attack under given conditions ; 2. Require a small garrison only ; 3. Cost little. He has, therefore, designed a form of revetment which he believes will be indestructible, flanking works of a similar character, and effective means for deslading the terrepleins. Doubting the power of plates to resist projectiles fired from modern guns, he puts them aside and substitutes for them a "revêtement tubulaire," which consists of a number of superimposed metal tubes placed end on to the besieger's fire. Into these tubes, the section of which is rectangular, the projectiles will enter and bury themselves harmlessly in the rampart behind. In order to render the flanking works indestructible they are buried in earth in the ditch, and by a long passage from the gun-chamber through the covering mass the projectiles are poured into the ditch. The arrangement for protecting the guns from shot fired by the besieger at the mouth of the passage is certainly very ingenious. Whether the project put forward by Colonel Cambrelin is chimerical, or whether it contains the germ of fortification of the future, cannot be fully discussed in these pages ; at all events, it deserves careful consideration from those whose *métier* it is to consider the much-vexed question of armoured defences.

Infantry Fire Tactics. By Lieutenant C. B. MAYNE, R.E. Chatham : Gale and Polden, 1885. Pp. 442. Size 7½" x 5¼" x 1". Weight 1½ lb. Price 6s.

The author, *only* an engineer, and therefore at once to be condemned to destruction for touching the sacred ark of any other arm. Yet possibly even an engineer who keeps his eyes and ears open, whose knowledge of languages extends beyond English, and who, moreover, has been on active service, may possibly have produced, as the result of five years' constant study of Infantry Fire Tactics, something worth reading about them. It is probable that during the last few years Infantry Fire Tactics as a subject hold the palm among diffuse literature and wearying reiterations. Lieutenant Mayne has done a real good to the Service in giving us a work, the first published on this subject in the English language, which places before us clearly and concisely the whole question. The book brings us up to date in Infantry Fire Tactics, and will serve as a base from which to follow future developments.

ERRATUM.

No. CXXX, page 743, for 1st January read 1st April.

1



EXTRACT FROM THE BY-LAWS.

Section II.—Composition.

1. Princes of the Blood Royal; Lords Lieutenant of Counties; Governors of Colonies and Dependencies; Officers of the Army, Navy, Marines, Her Majesty's East Indian Military and Naval Forces, Militia, Yeomanry, Royal Naval Reserve, and Volunteer Corps shall be entitled to become Members, *without ballot*, on payment of the Entrance Fee and Annual Subscription.

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THE COUNCIL of the ROYAL UNITED SERVICE INSTITUTION are very desirous of obtaining the assistance of OFFICERS of the NAVAL and MILITARY SERVICES in carrying out the different Courses of Lectures at the Institution.

The Lectures, and the Discussions which follow them (or an Abstract of them), and Descriptions of Inventions, are published in the Journal of the Institution, subject to the discretion of the Council, and illustrated, when necessary, by Diagrams.

N.B.—Officers who will favour the Institution with a Lecture, or a Course of Lectures, are requested to communicate with the Secretary on the subject as early as possible.

By order of the Council,

B. BURGESS, Captain,

Secretary.

